JOURNAL

OF

THE MILITARY SERVICE INSTITUTION

OF THE

UNITED STATES.

"I cannot help plead to my countrymen, at every opportunity, to cherish all that is manly and noble in the military profession, because Peace is enervating and no man is wise enough to foretell when soldiers may be in demand again."—SHERMAN.

VOL. XXVI. JANUARY, 1900. NO. CIII.

THE NICARAGUA CANAL IN ITS MILITARY ASPECTS.*

BY CAPTAIN LEWIS D. GREEN, U. S. ARMY (RETIRED).

IN discussing from a military standpoint the magnificent enterprise named above, the successful launching of which now seems to be an assured fact, it is very difficult to differentiate the military view from the commercial and political aspects, so intimately are they associated with each other from first to last. Nor is this at all strange as the history of nearly all military questions and actions has been based upon either political or commercial considerations, in one shape or another, as a little historical retrospection will show. Glancing over the military history of the country in which we live we find the first fifteen years after its birth under the cloud of the great Napoleonic wars, induced either by political ambition of Napoleon to subdue all Europe, or by efforts on the part of other nations to prevent further political and territorial aggression on the part of the great Corsican. Contemporaneous with the last three years of this period we find our own country involved in a war with Great Britain, the causes of which were both commercial and political, growing out of the blockades against commerce decreed by England and France, and the affront to our

* This essay received honorable mention in the competition for the prize medal of 1893, and the subject being one of interest at the present time it is therefore published.

sovereignty, embodied in the British contention for "right of search" and the impressment of American sailors into the English navy.

The causes of the war with Mexico in 1846 were entirely political, resulting from the admission of the Republic of Texas to the Union, a measure carried through by the slave-holding interests then controlling the general government, to increase their relative power by adding to the number of slave states.

In 1854, and again in 1877, wars broke out between Turkey and Russia. On both occasions the alleged reasons on the part of Russia were neither commercial nor political, but *sentimental*, namely, to deliver their co-religionists of the Greek Church from the oppression of the Turk, first in Greece and next in the Danubian provinces; it is not probable, however, that the well-known political desire and in fact necessity of Russia to obtain control of the outlet of the Black Sea at Constantinople was altogether lost to sight, though this end was not attained in either case.

In 1859–60 we find England engaged in a purely commercial war with China, for the highly moral object of creating a market for the opium crop of India by forcing its admission and use into China, against the protests and resistance of the Chinese government.

Our own great war of 1861–65 was purely political. In the following year, 1866, Austria and Prussia, having robbed Denmark of the Duchies of Schleswig and Holstein, fell out over the division of the plunder, and went into what is known as the Seven Weeks' War, the causes of which may be classed as either political or commercial, according to the point in view.

In 1871 broke out the Franco-Prussian War, caused by the offer of the Spanish throne to a Prussian prince, to which France objected, and, for the establishment of political prestige, forced a war even after the alleged cause was withdrawn.

In 1882 we come to the English occupation of Egypt, and the war which followed, though a small one, is very apposite to the subject of this discussion. The Suez Canal was finished in 1869 and opened a direct route to the British possessions in India, through which must flow the greater part of England's great commerce and military communications with the East.

By the purchase of stock the commercial control of this canal was assured to England; by her occupation of Egypt, a guard was placed at the door to prevent any other nation from interfering with that control. The present military aspect of that canal is therefore represented by the occupation by troops of the nearest inhabitable country by the country owning the controlling majority of the canal stock, and having the greatest traffic through its waters, and barring out the nation which furnished the brains, enterprise and most of the money for its construction.

These illustrations serve to show that a study of the commercial and political questions connected with so great an enterprise, affecting, as it will, so many nations, seems necessary to the comprehension of its Military aspect. These questions involve geographical location, the trade routes of the world, and the political relation thereto of all commercial nations and particularly of the United States and of the Central American Republics bordering on the proposed route.

A short study of the map shows us that the proposed Nicaragua Canal cuts through the Western continent and provides the water-way from Europe to the Orient which, since the days when Columbus vainly sought it, has been a recognized necessity to the commerce of the world, and, what is at this day of more importance, a waterway giving access to the western coasts of America, North and South, from their own eastern seaboards and from Europe, with great savings in time, expense and distance.

The country most affected by such a change in the channels of the world's trade is necessarily the United States, for though England is far ahead of all others as a carrier of commerce, the routes to her own colonial possessions and other countries engaging her trade at the opposite side of the world, will not be relatively modified to so great an extent by cutting through the narrow neck joining North and South America, as will those of this country. England's commerce passes to the Pacific around the Horn, Good Hope, or through the Suez Canal.

To her own colonies in New Zealand and Australia, her ships would save by the new channel only in case of the former, and then but a few hundred miles over open existing routes;

but in case of the ports of the west coast of America, North and South, with which British ships carry on a tremendous trade, it is very different. Taking the port of San Francisco as an example, English grain ships bound home to Liverpool, now either pass through the Straits of Magellan, if steamers, or around the Horn, if dependent on sails, and have to travel respectively about 13,500 or 15,600 miles. On the opening of the Nicaragua Canal the distance will be reduced to 7630 miles; a distance saving for steamers of 44 per cent., and for sailers of 51 per cent.

In other words a sailing vessel can go from Liverpool to San Francisco and back again in 250 miles less distance than is now possible one way. To all other ports on the western coast of North America the saving in time and distance will be equally great. To western South American ports the saving in distance is not relatively so great by the new route, but is worth regarding, being to Callao about 3500 miles for steamers, and about 4500 for sailing vessels; and to Valparaiso 1025 and 1650 miles respectively.

From our own country steam vessels leaving New York for San Francisco, Puget Sound, Sitka and Bering's Straits will save about 8300 miles, or make the voyage in from 37 per cent. to 47 per cent. of the mileage via Magellan; that is, the distance from New York to San Francisco will be barely over one-third that via Magellan, and something less than one-third in case of a sailing vessel, forced to go around the Horn. A little reflection will show the importance, commercially, of such a saving, ability to get from two to three times the work out of any given ship; the saving to owners in wages and rations of crews on any one trip, and the saving in insurance, both because of shorter time, and also on account of avoidance of the tireless gales and dangerous seas that beat about the far southern passage. The only offset to these great advantages is the comparatively trifling expense of canal tolls, and towage for sailing vessels. The distances from other chief ports on our Atlantic and Gulf seaboard to those of the Pacific are similarly shorter via the new route, and this is especially marked in the case of New Orleans which, with the great Mississippi River system reaching all the vast middle territory of the United States be-

hind her, and a water route from her wharves to all Pacific ports from one-fourth to one-third the length of present available routes, is destined to spring into the first rank of commercial cities. This saving in time and distance, increasing, as I have shown, the carrying capacity of any given ship on these routes from 100 per cent. to 200 per cent., must therefore increase our shipping interests, send much more freight to sea in American bottoms (successfully competing with the overland railways with their high freight charges), and therefore increase the National responsibility on the high seas in protecting from foreign interference the great shipping interests that must grow up.

At this point it may be said that the Military aspect of this question is born and becomes of professional interest to the military services, afloat and ashore, as to them the country will look to uphold this increased responsibility.

All arguments showing the benefits of a greatly shortened route to the Pacific for commercial shipping apply with greater force to the advantage thus gained for our vessels of war and troop ships, needed suddenly on one coast or the other, to repel attack of foreign powers, which responsibility, though seemingly remote, may, in the years of service remaining to some of us, be realized. Such emergencies are seldom foreseen, but when they come the element of time and the ability to promptly place our ships and troops are of the utmost importance.

Within the past few months our Government has been requested by the *de facto* government of the Sandwich Islands to take them in as a part of our political system. Absorption by us of that small kingdom, or even a protectorate, will involve additional military responsibilities: the latter will become a point of vantage to overlook and care for our great commerce along the west coast of both Americas, a great naval station for repair and supply of our ships in the Pacific will be established, and it must be held with sufficient strength to effectually discourage any attempt at capture or destruction by some power strong on the seas. From their geographical position these islands have been called "The Gibraltar of the Pacific": the great rock of Gibraltar itself would be of little use to England if it were not held with force enough to stand against any assault or siege: our Gibraltar in the Pacific, if held at all, must

be held the same way, and in its holding, the value of quick water communication with all ports on our eastern seaboard, which would be insured by the possession of the Nicaragua Canal, saving as it would over one-half the present water distance, is a factor too apparent to need argument.

Two different treaties between the United States and Nicaragua have been negotiated, the first in 1868 and the second in 1884, both making the United States a party to the guarantee of neutrality of the proposed canal; the latter was under consideration of the Senate, but was withdrawn by the President before action was taken in ratification. It is however assumed by all the world that, if this water-way is built, the United States must stand its sponsor, and it matters little how we start, we will have this responsibility thrust upon us, sooner or later, as has England in the case of the Suez Canal.

What, then, does a guarantee of neutrality mean? It can mean nothing less than the placing and maintenance of such a military force as will effectively carry out such an agreement. The nearest point of our own coast to the eastern end of the canal at Greytown is Key West, over 1000 miles to the northward, and to be gained only by sailing around the western end of the Spanish island of Cuba. I do not think that it would occur to anyone that troops or ships there placed would prevent trespass upon the canal by any nation, although Key West and New Orleans would both form points of reserve whence reenforcements and supplies would naturally be forwarded. Bills were before the last Congress, and will be submitted to the next, providing that the United States guarantee the bonds of the Canal Company, which will give to them a par market value. The various reports by committees and speeches in Congress show that if this guarantee is given, it will only be on condition that from 70 per cent. to 80 per cent. of the capital stock of the company, and therefore the entire control, would pass to our Government as security for this endorsement. Practically then, the canal will belong to us. The above bills contain clauses for the unhindered passing of our troops and vessels of war through Nicaraguan territory, and although the independence and sovereignty of that republic are carefully recognized, will it not be probable, in view of what has been shown, that it will be neces-

sary to so modify this clause as to permit the occupation by our troops of the line of the canal, simply to protect our property and great commercial interests in case of war between strong powers, or even in case of guerrilla warfare in Central America, when some revolutionary leader emulating, in a way, the exampie of Herostratus when he fired the temple at Ephesus, might desire to make a bid for a place in history by blowing up the canal locks.

We have thus far discussed the military features of the canal in only a general way: let us view it at a closer range. The proposed canal though passing through the territory of Nicaragua nearly its entire distance, borders on that of Costa Rica for a few miles, and for this reason all late negotiations have included the latter republic, which has made various concessions for benefits to be obtained. In such agreements usually appears the provision that the new canal shall not be closed except to vessels of war of a country at war with one of the Central American republics. These states are essentially volcanic, not only physically but socially, and to a still greater degree politically, and it is a year to be noted that passes without a broil of some sort within their borders. This point receives emphasis and practical illustration in the revolution and overturning of the government of Nicaragua itself which has just taken place, and which has all happened since the preceding paragraph was originally written.

As two of the five states are contiguous to the new canal the possibility of an attempt to close it as a war measure against one or the other, and perhaps by irresponsible revolutionists, is not so remote that it may be ignored by the commercial world, which will demand an assurance that its use and maintenance be not impaired, and that a guarantee of its neutrality be effective. Having assumed, therefore, the political and property responsibilities involved in such a great work as this canal will be when completed, the details of its military aspect begin to clear. We see that a military force, land and naval, will be required to occupy the country for the following reasons:

1st. To protect the canal itself and our great property interests from damage in case of war between ourselves and any power capable of striking us in that quarter.

2d. To protect this canal and property from domestic violence and local revolutionary enterprises of the volatile and irresponsible inhabitants of that country in whose veins the blood of their freebooter and piratical ancestors constantly incites to anarchy and destruction.

3d. To insure neutrality in case of war between foreign nations whose commerce and warships made use of the canal as a highway. For this latter purpose the whole length of waterway from the Atlantic to the Pacific would naturally become a harbor of the United States, so far as the laws of neutrality were concerned, and to that extent the sovereignty of Nicaragua would have to be protected and receive the support of the United States.

A study of the geographical features of the country through which the canal passes will assist to a better understanding of the subject: Approaching the canal at its eastern extremity we find a low shore or sand-bar thrown up by the waves, which in the past twenty years has grown to such an extent as to fill up the old harbor of San Juan del Norte, or Greytown, as it is called by the English. The canal company has already built a pier extending seaward over twelve hundred feet, and by the reflex wash of the waves and undertow the old harbor has again been opened to a depth of several feet by the diversion and use of the same forces that filled it up. This harbor dredged out to the depth required for the largest seagoing craft, forms the eastern basin and entrance to the canal. For about nine miles back from this sandbar lies a thick and tangled swamp, through which the canal is being cut at sea level before the first rising ground and high land is reached. By a succession of locks vessels will be raised one hundred and six feet above ocean level, thread their way through eighteen miles of canal and basins made by damming the mouths of transverse valleys, and finally reach the San Juan River, heretofore the only path to Nicaragua Lake and the interior, which nearly half a century ago, saw pass a stream of thousands of adventurous spirits, lured onward by the tales of gold in California. The river we see, however, is another river than that up which toiled in dugouts the weary emigrant of '49; its lower reaches abandoned by traffic to their tropic solitudes, above, the vexatious rapids and

abrupt angles have disappeared—swallowed in a quiet and dignified stream, deep enough for vessels of ten thousand tons—a marvelous change effected by the building of a dam seventy feet high and nearly two thousand feet long, at Ochoa, a short distance below the point where the canal proper leaves the hills, which from their granite ledges supply the material needed in that gigantic work. Up this river, first penetrated by white men nearly four hundred years ago, and many times the scene of raid of Corsair and Buccaneer from the Spanish Main, passing Fort Castillo, where as a youngster, Nelson, Britain's greatest admiral, lost an eye in a fierce combat of an English naval expedition which was there beaten and turned back, we approach old Fort San Carlos, sixty miles above the dam, see the river rapidly broaden, and before us is great Lake Nicaragua, a reservoir of limitless capacity to supply the lockage of the canal, as well as a great safety valve to take up and hold the floods of tropical rivers poured into it in the rainy season, to be allowed to escape gradually and without damage. We sail diagonally across the southern half of the lake, passing groups of beautiful islands, and fifty-six miles from the San Juan outlet approach the western shore. Before us is a rolling open country, rising at its lowest point, but a half-hundred feet above the lake and separating us but twelve miles in a direct line from the waters of the Pacific at the port of Brito. Standing upon the higher swells of this ridge and looking eastward, we have spread before us the waters of this great inland sea ; a dozen miles away lies a great island rising abruptly into two lofty volcanic cones, Ometepe and Madera, lifting their crests, one five thousand and the other four thousand feet above the lake, a little smoke spiral crowning the former showing that its fires still live. Facing about we have spread before us the vast stretches of the Pacific Ocean, and perhaps may faintly realize the exultation of that adventurous Spaniard, Nunez de Balboa who, three hundred and seventy-five years ago, feasted his eyes on the counterpart of this scene, from the divide at Panama, and who, it is said, descending, waded waist deep into the placid waters, and in the name of Spain, took possession of the whole great Pacific Ocean by right of discovery. These gently rolling hills may one day interest us personally, for there is much of value besides the

grand view and the historical associations. This is an open park-like country swept by the cooling breezes of the northeast trade winds, and a perfect sanitarium, the mercury never dropping below 65° Fahrenheit, and rarely rising above 90 degrees, the nights always cool and pleasant. To realize this we must remember that we are on the same parallel of latitude in the tropics that crosses North Central Africa, the desert of Sahara, the sun-scorched Soudan, the upper reaches of the Nile and sweltering Southern India, Burmah and Siam. The soil is very fertile and our garrisons can raise their own bananas and pine-apples, or prime coffee, if dissatisfied with that furnished by the Commissary Department, and even the material needed for their rubber boots and overshoes.

Dropping down the western slope we reach the Pacific at Brito where a small harbor now exists, to be enlarged by dredging and construction of break-waters.

To practically defend this canal we would require heavy sea batteries at its ocean extremities, armed with guns of equal power to those carried by first-class battle-ships: the lake itself forms a vast harbor, over a hundred miles long by forty wide, where our navies could ride at ease, in fresh water, and comparatively free from the marine growths that so quickly foul the bottoms of ships, and particularly of steel ships in tropical seas, always ready to sally forth and strike blows upon either the Atlantic or Pacific coasts, thus being equal in effective force to two fleets of the same size, with present communication, one being stationed in either ocean and separated from each other by some twelve thousand miles, or six weeks or more of time. At convenient points will be provided docks, shops and depots of supplies for naval use. In the sea-coast batteries will be habitually kept sufficient garrisons to guard and care for the property and guns, while the main military force could be massed at one or two central points upon the healthful and breezy uplands whence the sea-coast garrisons could be changed by periodic details, the whole or any part of the command ready to move to either the east or west coast, as required, at a day's notice.

Attacks on the defenses of the canal termini or upon its inland reaches would be extremely difficult: The batteries at the eastern end, located on a sand shore, are protected in their flanks

and rear by the impenetrable tropical swamp and undergrowth characteristic of the so-called Mosquito Coast: Effective attack upon them must be made from the sea alone, and as there is no protection from the strong and constant on-shore winds save in the harbor itself, hostile ships would have a hard time reducing the unsupported batteries, to say nothing of the fleet that on a few hours' notice could drop down from the lake and engage them at sea. The inland canals and locks could also be defended by a small force, as attack thereupon must be by land expeditions penetrating from the coast and striking at the most vulnerable points. Nature has well defended the whole canal line: from the lake eastward, forests and swamps swarming with poisonous reptiles and insects, impenetrable to any save the smallest of forces and flooded for nine months in a year with a downpour of water, aggregating a precipitation of nearly *twenty-five feet* per annum, line its length on both sides to the north and south. The only points of approach are the so-called roads coming up from the south in Costa Rica, along the San Carlos River, mere mule trails over the roughest of mountain country. Small camps of observation and gunboat patrols in the canal and San Juan River would effectually prevent any interference in that quarter. On the western end an enterprising enemy might have more opportunity for doing damage. Here the physical characteristics of the country are entirely different: rolling, comparatively open country replaces the rain-soaked, tangled swamps and forests of the eastern divide, and having a rainfall similar to that experienced in the Middle and New England States. The navy will efficiently care for the lake entrances and the lake itself.

The coast batteries at Brito could be made amply strong to protect that port and the western canal entrance from any naval attack in their front, but the canal itself, with its locks, would be vulnerable between Brito and the lake to the attacks of any land force, whether raised in Nicaragua or a neighboring state, or landed from transports at one of the several points on the west coast where such landing could be made, particularly as at San Juan del Sur and Corinto, to the south and north respectively of Brito.

That, however, is the country in which we will station our

main military force, which, with the assistance of the gunboats stationed in the lake and canal, will be large enough to engage and defeat any force that can be landed by a naval expedition, or otherwise brought against it.

The land force permanently stationed there would probably consist of a brigade of infantry, a battalion of cavalry and one or two light batteries, besides the heavy artillery troops required to fully man the sea-coast defenses at the canal termini.

Unlike service in most tropical countries, this would probably prove to be pleasant and attractive: all authorities unite in saying that the climate is exceptionally healthful: even on the eastern coast where the rainfall is exceptionally heavy, and surrounded by swamps in which the men of the Construction Company worked month after month, much of the time in water and mud up to their waists, there were in the year 1890, as shown by the chief surgeon's report, but twenty-three deaths among about two thousand men, of which but twelve were caused by diseases incident to the climate. Among the officers of the company only two died; one committed suicide and the other was killed by the fall of a derrick.

So much for local defense against actual military aggression. The moral effect of this military readiness to hold our own can scarcely be overestimated. Occupying a position in Central America which is practically impregnable to foreign attack, and from which as a base our modern navy can act on either the Atlantic or Pacific, dominating on the one hand the Gulf and its commerce to our own country and Mexico, the West Indies, with its agglomeration of national interests, Spanish, English, French and Portuguese, and northern coasts of South America; on the other with the support of the stations that may be established in Hawaii and among the Galapagos Islands, hold in complete control the ocean highways of the Pacific. By the consummation of this work then, we may say that the Military aspects thereof involve the following points:

A military occupation of the line of the canal; the establishment there of docks, navy yards and depots of naval and other military supplies; the doubling of our naval strength on the two coasts of America without adding a ship to the fleets; the establishment of a virtual protectorate over Nicaragua by

this occupation, and of a military supremacy on this hemisphere, that, not desiring for itself to override or deprive of independence any nation of this continent, will also strategically be in a position to see to it that no outsider attempts anything of the kind, and to uphold, with something besides theory, the doctrine of non-interference in American affairs by European nations, first enunciated by President Monroe. As a fitting conclusion I cannot do better than quote from a recent speech on this subject in the United States Senate, which in forceful phrase sets forth the advantages to us of this great work, and the military opportunities and responsibilities involved, delivered by Senator Morgan of Alabama, than whom no one is better informed concerning our relations with foreign governments, and our needs in relation to them :

"When all the maritime powers shall meet in this isthmian canal it will be found that the best if not the only guaranty of peace and justice in the common use of the canal will be the power of some great nation having a right to control it. Without some such guaranty the canal and the States through which it is located would only become a temptation to the cupidity of the great maritime powers.

"We can decline this duty if we prefer to sacrifice our coast trade with the Pacific States, or greatly to embarrass it, and if we prefer to see some great commercial nation interpose between us and South America and the navy of some great European power in command of the Gulf of Mexico and the Caribbean Sea.

"The national power that controls the transit of ships across the Isthmus of Darien must necessarily be one of the greatest powers in the world in its influence on commerce and naval warfare.

"It is a simple and inadequate illustration of the military feature of the subject to say that it requires two fleets, separated by twelve thousand miles of sailing distance, to blockade one fleet of equal power to either in Lake Nicaragua. But, this doubling of the power of the fleet at anchor in Lake Nicaragua over that of any other great maritime power that is moving across the Atlantic or Pacific to attack our coasts, is but a small part of the strategic advantages of such a situation.

"As *a point d'appui*, a foothold from which to attack or defend, to threaten or protect all the coasts of this hemisphere and the islands and adjacent seas, it is more a point of commanding power in the Atlantic and Pacific Oceans than Gibraltar is in the Mediterranean Sea."

THE BATTLE OF SHILOH.

By Lieut.-Col. W. W. WALLACE, Second U. S. Cavalry.

IN January, 1862, we find the National and Confederate armies west of the Cumberland mountains confronting each other as follows: The Confederate line of resistance was drawn from Columbus, on the Mississippi River, to Pound Gap. Polk was at Columbus with 17,000 men, Tilghman was at Fort Henry on the Tennessee River with 3000, there was a force of 3000 at Fort Donelson on the Cumberland, and 6000 at Clarksville on the same river. General Albert Sidney Johnston, commanding all the Confederate forces, was himself at Bowling Green with 14,000. About 4000 men under Crittenden were south of Mill Spring, and Humphrey Marshall was still further east near Pound Gap with 2000 men. Opposite this line and about to attack, were the Union forces. Grant was at Cairo with 20,000; he was the District Commander. C. F. Smith was at Paduca; there were about ten thousand men divided between that place and Smithland, at the mouth of the Cumberland River. General D. C. Buell's Army of the Ohio was at Elizabethtown, 40,000 strong. Headquarters of his Department was at Louisville. Colonel Garfield, afterwards President of the United States, met Humphrey Marshall at Prestonburg, on the Big Sandy River, January 10th, and drove him over the mountains into Virginia. Thomas, with about 4000 (also a part of Buell's command), fought and won the battle of Mill Spring January 19th, utterly routing Crittenden's troops, so that they did not come together again as an organization, but were scattered

through the mountains; many of them joined General Johnston's army at Murfreesborough a few weeks later. Finally, after much importunity by General Grant and Admiral Foote, they were ordered by Halleck to move against Fort Henry and Donelson. The army disembarked, 17,000 strong, three miles below Henry on February 5th, and at eleven o'clock next morning took up the march, but the entire country was covered with water and the progress was slow, so that the gallant Admiral had all of the glory for the navy. The battle was over, and the fort had been surrendered when the army reached there at about three o'clock in the afternoon. General Tilghman had fought a brave fight with his 56 artillerymen. All but four of his eleven guns had been dismounted. The Admiral's flagship was struck thirty-eight times, and the *Essex* was disabled by having a shot pass through her boiler; many lives were lost on both sides. Grant telegraphed to Halleck that he would take Fort Donelson on the 8th, but he reckoned without his host, his army was in fact stuck in the mud, and it took several days to get it on solid ground, consequently, it was the 14th of February before the fort was completely invested. In the meantime its garrison had been increased to 20,000 men, General Floyd was in command, Pillow was second, and Buckner third; Grant appeared before Donelson on the 12th of April with 15,000 men, but on the 15th his army numbered 28,000. Buckner surrendered on the 16th with more than 15,000, Floyd and Pillow having run away during the night. Grant's delay turned out to be a fortunate circumstance, for if he had attacked on the 8th, as proposed, his prisoners would only have numbered 6000 at most. General Johnston did not wait to hear of the fall of Donelson, but on the 14th evacuated Bowling Green, and retreated on Nashville; Buell followed him closely, and on the 25th entered Nashville, Johnston having fallen back on Murfreesborough. Columbus, called by the Confederates the Gibraltar of the South, was abandoned by General Polk March 2d. Kentucky was thus saved to the Union and the State of Tennessee was open to both army and fleet. Owing to a misunderstanding, General Grant was practically in arrest between the 4th and the 13th of March; when he resumed command on the 17th he found the army at Savannah, on the Ten-

nessee, increased by three divisions, Sherman's, Prentiss's and Hurlbut's.

About this time it became apparent at Washington that one general should command all of the forces in the field west of the Cumberland mountains, and on March 11th Buell with his army was subject to General Halleck's orders. Heretofore Halleck had commanded the Department of the Missouri with Headquarters at St. Louis; while Buell commanded the Department of the Ohio, Headquarters at Louisville, the dividing line had been the Cumberland River where it runs north and south. The new department was called the Department of the Mississippi. The change was not made a moment too soon, because these two generals had not agreed as to the concentration of their armies, while every nerve was being strained by the Confederate Generals Johnston and Beauregard to bring their armies together at Corinth. Albert Sidney Johnston commanded all of the Confederate forces west of the Cumberland mountains. Halleck acted immediately; he telegraphed Buell to march without delay to Savannah; that general moved from Nashville on the 15th of March, but his cavalry did not reach Duck creek in time to prevent the burning of a most important bridge over that swollen stream. It took twelve days to build another bridge, most precious time lost. The army was over on the 30th of March, too late for the first day's battle at Shiloh, but in time to turn the tables on the second day. All praise to General Nelson's extraordinary energy: his division was not in the lead, but on discovering that the high water in the river had subsided sufficiently to admit of fording, he obtained permission to push ahead, and crossed before the bridges were completed; the distance to Savannah was 90 miles; he reached that place on the evening of February 5th with one brigade, Ammen's, and was in time to assist in the repulse of the last charge of the enemy on the reserve artillery near the landing at about sundown on the evening of the 6th of April. Pittsburg Landing, the point selected for the concentration of the Army of the Tennessee, was decided upon in this way. General Halleck, from his Headquarters at St. Louis, originally designated Florence, but on account of the enemy's forces at Corinth and Humboldt, he directed the landing to be made at Savannah,

and that a depot be established there. Later he instructed General C. F. Smith, who was at that time in command, to select a place for a depot and point for the assembly of the army, with a view to the march on Corinth. This, however, was not done before General Grant resumed command on March 17th; then General Sherman, who had returned as far as Pittsburg Landing with his division from a fruitless expedition against the Memphis and Charleston Railroad near Eastport (the river had overflowed its banks to such an extent that he could not land), made a short march into the interior and back, reporting the same day to General Grant, at Savannah, that he was strongly impressed with the position for its strategic character, that the ground itself admitted of easy defense by a small command, and yet afforded admirable camping ground for one hundred thousand men. It was upon this report that the Federal Base was established at Pittsburg Landing. Hurlbut's division was disembarked on the 17th, and the next day, March 18th, Sherman landed his own division; a day or two later the division of W. H. L. Wallace arrived. This choice of position did not however remain unchallenged: General D. C. Buell condemned it in strong terms; he says, "An army comprising seventy regiments of infantry, twenty batteries of artillery, and a sufficiency of cavalry, lay for two weeks and more in isolated camps, with a river in its rear, and a hostile army claimed to be superior in numbers twenty miles distant in its front, while the commander made his headquarters and passed his nights nine miles away on the opposite side of the river. It had no line, or order of battle, no defensive works of any sort, no outposts, properly speaking, to give warning, or check the advance of an enemy, and no recognized head during the absence of the regular commander."

William Preston Johnston, son of General Albert Sidney Johnston, was a colonel in the Confederate service and for some time on duty in the War Department at Richmond. On that account he is said to have had peculiarly favorable advantages in collecting data for his "Life of General Albert Sidney Johnston." In one place he says: "Grant has been severely criticised for placing his army with the river at its back. But he was there to take the initiative. He had the larger army, under

cover, too, of his gunboats; he was expecting Buell daily; and the ground was admirable for defense. Indeed, his position was a natural stronghold. Flanked by Owl and Lick creeks, with their many margins, and with his front protected by a swampy valley, he occupied a quadrilateral of great strength. His troops were stationed on wooded heights, generally screened by heavy undergrowth and approached across boggy ravines or open fields. Each camp was a fortress in itself, and the line of retreat afforded at each step some like point to rally on. He did not fortify his camps, it is true; but he was not there for defense, but for attack."

General Beauregard says of it: "About the position thus taken by the Federal army, there can hardly be two professional opinions. It gave their adversary an opportunity for an almost fatal counterstroke; such as has rarely been afforded to the weaker of two belligerents in all the sinews and resources of war. A narrow *cul-de-sac*, formed by Snake creek with the broad bank full river forming its bottom, tactically as well as strategically was a false position for an invading army, and I may well add that, having been occupied, the exigent precaution, under the circumstances, of making a *place d'armes* of it was wholly overlooked, though it was barely twenty-three miles distant from Corinth, where, according to the Federal general's reports of the period, a supposed Confederate army of from fifty to sixty thousand men were concentrated."

The five divisions of the Army of the Tennessee were camped about, here and there, anywhere, without apparently the slightest precaution against attack, not a rifle pit, not even a shovelful of earth had been thrown up with a view to protection; the only thought seems to have been to get the best ground available for camp and drill purposes. One regiment, the 53d Ohio, in order to hold a spring of water for the brigade, was camped two hundred yards in front of its proper position, and separated from the rest of the brigade by a stream with swampy borders which emptied into Oak creek. The second brigade (Stewart's) of Sherman's division was encamped a mile or more from the rest of the division, watching some fords of Lick creek. That same fatal idea seemed to prevail everywhere, viz., the Confederate army was to be attacked behind its works at Corinth;

nothing else could happen. Was the enemy to profit nothing by the bitter experience which culminated in the surrender of 15,000 men at Donelson on February 16th? There he had waited behind his works and lost everything. The fact is that neither President Davis, nor any of the Confederate generals, thought for a moment of waiting to be attacked. Mr. Davis wrote urging Johnston to attack before Buell could come up. As early as March 15th Beaureguard dispatched to Johnston "The essential point for us is to strike a blow at General Grant as soon as your troops are united with mine, but before Buell's junction with the exposed army at Pittsburg." General Lee, too, said, "Be sure to strike before Grant and Buell join hands." General Bragg, who was with the army at Corinth, was for attacking the Union divisions before all should have disembarked, and at last, on April 2d, when General Beauregard, having heard of Lew Wallace's demonstration toward Purdey, declared, now is the time to attack while they are separated. General Johnston ordered the advance to be made the next day. But suppose that a *place d'armes* had been established as General Beauregard suggests, and as in fact Halleck had ordered; would the Army of the Ohio have fared any better? It is hard to say, for have we not a striking example at hand in the siege of Fort Donelson, where Grant forced the capitulation of a fortified position defended by 20,000 men? Reverse the position of the armies at Shiloh and we have them at Donelson, the difference being that the Confederates fortified strongly at Donelson while the Army of the Tennessee simply went into camp at Shiloh. The comparative strength in numbers of the two armies was about the same; 40,000 Confederates attacking 35,000 National troops at Shiloh, and 28,000 National, attacking 20,000 Confederates at Donelson.

Looking at the topographical features of the two battlefields, it is astonishing to note the similarity in so many respects. Repeating what General Beauregard said of Pittsburg Landing, only changing the names of the creeks, applies exactly to Donelson: "A narrow *cul-de-sac*, formed by Hickman creek and Indian creek, with a broad bank full river forming its bottom." There is this difference, however, the terrain was more broken at Donelson, and the creeks were closer together;

the sources of the streams interlaced on both battle-fields. The Confederates fortified Donelson strongly, nevertheless they were compelled to surrender. General Grant says: "The criticism has often been made that the Union troops should have been intrenched at Shiloh; but up to that time the pick and spade had been but little resorted to at the west; I had, however, taken this subject under consideration soon after resuming command in the field. McPherson, my only engineer, had been directed to lay out a line to intrench. He did so, but reported that it would have to be made in rear of the line of encampment as it then ran. The new line, while it would be nearer the river, was yet too far away from the Tennessee, or even from the creeks, to be easily supplied with water from them; and in case of attack, the creeks would be in the hands of the enemy. Besides this, the troops with me (officers and men) needed discipline and drill more than they did experience with the pick, shovel and axe. Reënforcements were arriving almost daily, composed of troops that had been hastily thrown together into companies and regiments—fragments of incomplete organizations, the men and officers strangers to each other. Under all these circumstances I concluded that drill and discipline were worth more to our men than fortifications."

A great deal has been said about surprise. Was the National army surprised at Shiloh? It was an undoubted fact that neither General Grant nor General Sherman, upon whom Halleck relied for information relative to the movements of the enemy at Corinth, anticipated an attack. Sherman wrote to Grant at Savannah on April 5th, "All is quiet along my line now," and again, "I do not apprehend anything like an attack upon our position." Grant, on the same day dispatched to General Halleck: "I have scarcely the faintest idea of an attack being made upon us." He had even gone so far, April 4th, as to send word to General Nelson, who was commanding the advance division of Buell's army, not to hurry as it would not be practicable to cross his division over the river to Pittsburg Landing until Monday or Tuesday of the following week. Fortunately, however, Nelson pushed straight on and was at Savannah with his division on the night of April 5th. This fatal impression that possessed the minds of Grant and

Sherman is almost incredible. Certainly they had been warned. Outpost duty had been fairly well done for those days. It is true that there was no regularly organized system of Security and Information for the entire army, but both Sherman and Prentiss who commanded the two divisions occupying the front line had this duty performed, independently, in a sort of a way. The 5th Ohio Cavalry, attached to Sherman's division until April 5th, frequently made reconnoitring expeditions some miles to the front and encountered parties of hostile cavalry. Thursday, April 3d, Sherman sent Buckland's brigade on a reconnaissance on the Corinth road; Buckland marched about five miles out, to where the roads forked; then sent two companies on each road; both encountered hostile cavalry within half a mile, and saw large bodies of hostile cavalry beyond: the companies were recalled, and the brigade reached camp a little before dark. Next day, Friday the 4th, a cavalry dash on Buckland's picket line swooped off a lieutenant and seven men; Sherman hearing of it, sent out 150 cavalry. Major Crocket, who was drilling his infantry regiment nearby, sent one company, and followed with another to scout beyond the picket line. Before long firing was heard, and Buckland went with a battalion to the rescue; he found that the 2d company had been attacked, and that Major Crocket had been captured; he pushed on about two miles further and attacked a body of cavalry that was on the point of charging upon the first company; was reënforced by the cavalry that had been sent out by Sherman; pushed the hostile cavalry a distance estimated to be another mile and came in view of artillery and infantry; was fired on by the artillery; returned with ten prisoners and found General Sherman at the picket post with a brigade in line. Mark how these incidents impressed the Confederate General Beauregard. He declared that the enemy was on his guard and that they would surely find him intrenched up to his eyes. He advised the abandonment of the attempt and the return of the army to Corinth. Indeed General Grant was disturbed too, notwithstanding his dispatch to General Halleck and his message to Nelson not to hurry, for he says: "The skirmishing in our front had been so continuous from about the 3d of April up to the determined attack, that I remained on the field each night

until an hour when I felt that there would be no further danger before morning." In another place he says: "Affairs at Pittsburg Landing had been such for several days, that I did not want to be away during the day." Captain Mason, of the 77th Ohio, on picket, observed at daylight on Saturday morning, numbers of rabbits and squirrels scudding from the woods to and across his picket line. General Sherman enjoined Buckland and Hildebrand to be vigilant, strengthen their pickets and be prepared for attack. Saturday afternoon General Prentiss sent Colonel Moore of the 21st Missouri with three companies to reconnoitre, but he marched too much to the west; if he had gone more to the south, he would have encountered Hardee's line. On Friday night reconnoitring parties in front of General Lew Wallace's position at Crump's Landing (five miles below Pittsburg Landing) noticed the activity of the enemy at Purdey and Bethel, on the Mobile and Ohio railroad, which was in fact Cheatham's troops going to join the main army of the Confederates, but Wallace thought that it was to be an attack upon his division. Consequently he concentrated all three of his brigades at Adamsville. This movement was the cause of the order for the immediate attack on Shiloh; it was reported to Beauregard, who instantly advised General Johnston to attack. That general, after a consultation with General Bragg, gave the order to move on Shiloh next day, the 3d.

In the meantime General Lew Wallace had reported to General Grant what was taking place in his front and what his impression was regarding the matter. Grant then ordered W. H. L. Wallace and Hurlbut to be in readiness to move to the assistance of Lew Wallace. Their camps were near the river. Fortunately for the army Generals Prentiss and Peabody were anxious and thoroughly on their guard. Three companies of the 25th Missouri were sent out at three o'clock on the morning of the 6th of April; at about five o'clock they struck Hardee's picket line and attacked it. This was really the opening of the battle. The three companies were repulsed, but being reënforced by Colonel Moore with his regiment, the 21st Missouri advanced again, meeting Shaver's brigade, when they fell back fighting to the division line.

Nevertheless, Colonel Locket, General Bragg's chief of staff,

states that he in company with another officer at four o'clock on the morning of the 6th moved along the Union line of camps from the Bark road to the extreme left and that the surprise was complete. He must have visited the line after the three companies of the 25th Missouri had moved out and before they struck the Confederate picket line.

Major Charles Morton, 4th Cavalry, who was a drummer boy in the 25th Missouri Infantry, Prentiss' division, says that on Saturday afternoon the whole 6th Division except the camp guard was reviewed and the rumor afterwards confirmed, went through the camp that night, that a detachment of Confederate cavalry rode up to the edge of the field and witnessed the review. This of course shows how imperfectly outpost duty was done. The following from a brigade commander on the Confederate side at Shiloh was true of all the eighty thousand men engaged there on both sides. "You know that I was as ignorant of the military art at that time as it was possible for a civilian to be. I had never seen a man fire a musket, I had never heard a lecture or heard a line on the subject; we were all tyros, all the rawest green recruits—generals, colonels, captains and soldiers."

Regarding the capture of General Prentiss, General Grant says: "But no matter whether it was four o'clock or later, the story that he and his command were surprised and captured in their camps, is without any foundation whatever." Everybody knows now that Generals Prentiss and W. H. L. Wallace were the heroes of "The Hornet's Nest," a position on the Shiloh field so called by the Confederates because of the tremendous efforts of those two generals to resist the enemy there. They had consulted together in the midst of the fight and determined to hold out to the last. Wallace was killed and Prentiss with 2200 of his men was captured at about five o'clock in the evening. Very possibly that incident saved the day; the Confederates seemed to have been impressed with the idea that the battle was over; troops came from all parts of the field to see the prisoners and the guard that accompanied them to the rear was unnecessarily large; there was no fighting for some time after; then it was too late. General Johnston having been killed at about two o'clock, General Beauregard was in

command; he had issued the order to withdraw. Therefore Jackson and Chalmers' brigades were not supported in their charge on the reserve artillery near the landing, but even if they had been, it was too late, because Buell's troops had commenced to arrive, Ammen's brigade had deployed and opened fire; the battle was over for that day.

The question is often asked: Was the presence of General Buell and his Army of the Ohio necessary on the field of Shiloh in order that the day might be saved to the Union? General Grant says "Victory was assured when Wallace arrived even if there had been no other support," and in another place he says, "There was in fact no hour during the day when I doubted the eventual defeat of the enemy." These are brave words in view of the fact that the army had been pushed back towards the landing all day long until at night it was close to the river. Two of the grand divisions at least had disappeared from the field as organizations and the remaining three were sadly depleted. The army had done wonderfully well, only 25,000 men to resist the attack of 40,000 from early morning until sundown. Wallace's division did not arrive on the battle-field until after dark on the first day. These are Grant's figures, he says: "Excluding the troops who fled panic-stricken before they had fired a shot, estimated at ten thousand men, there was not a time during the 6th when he had more than 25,000 men in line." He must have been alone in his most sanguine anticipation, for it is certain that if it had not been for the opportune arrival of the Army of the Ohio, the Army of the Tennessee must have been swept away on the 7th of April. There are many incontrovertible circumstances to substantiate this statement, as also the testimony of many general and staff officers on both sides whose opinions cannot be ignored. Here is one circumstance which I think must be convincing in itself alone, namely, that notwithstanding the fact that there were 25,000 fresh troops on the National side when the battle opened on the morning of the 7th, it was not until after nine hours of desperate fighting that General Beauregard gave orders for the withdrawal of his army. It was half past two o'clock in the afternoon when he sent his aides to the several corps commanders to order them to with-

draw. There was no rout, it was a comparatively orderly retreat covered by a rearguard; there was no pursuit until the next day and then only for a short distance, when the advance was checked by the enemy's cavalry, but in turn was driven off when General Sherman came up with two brigades.

If the Army of the Ohio had not come up, General Grant would have renewed the fight on the 7th, and his strength would have been increased by Lew Wallace's Division of 5000 fresh troops. With these could he have retrieved all that had been lost on the first day? There is any quantity of data at hand on this point, but it would make a long story, too long for this essay. The Confederate Generals Bragg, Polk, Hardee, Breckinridge, Withers, Gibson and Gilmer have declared that if General Beauregard had not called a halt when he did on the afternoon of the first day, and if an energetic assault had been made the whole Union line would have yielded. When General Bragg received the order to withdraw he exclaimed, "If you had not given that order to the other commanders, I would not obey it; now all is lost." General Prentiss, it will be remembered, was captured late on the afternoon of the first day. That evening, being at General Beauregard's Headquarters, General Jordan, Adjutant General of the Confederate army, was directed to take charge of the prisoner. That officer says: "Colonel Thompson and myself, with General Prentiss sandwiched between us, shared a rough make-shift of a bed. Prentiss and Thompson had been old acquaintances, and the former talked freely of the battle, as also of the war, with a good deal of intelligence and good temper. With a laugh he said: 'You gentlemen have had your way today, but it will be very different to-morrow. You'll see. Buell will effect a junction with Grant to-night, and will turn the tables on you in the morning.' I showed him the despatch that had reached me on the field, to the effect that Buell could not come up in time. He insisted, however, that it was a mistake, as we would see. When the firing roused us in the morning the General exclaimed, 'Ah, didn't I tell you so, there is Buell,' and so it proved."

THE AMERICAN VICTORIES BEFORE MANILA.*

By GEO. C. CRAIG, Author of "Federal Defenses," Sydney, Australia.

I.

THE outpost aspect before Manila on February 4, 1899, was fan-shape, the Americans holding the handle on the fortification of Manila, and the insurgents holding the outspreading fringe edge. The handle represented the city, the bars of the fan the roads out to the fringe, or beginning of the rebel fringe of bamboo, scrub, or jungle. The rebel leader resolved to break the long peace by sentry provocation. The patrols tried to pass the American lines towards the city, against Otis's orders, and had been often stopped. An event occurred which opened the battle upon a large scale. The pain of long nerve strain on the part of watchful American soldiers was about to end, much to the joy of the rank and file on both sides. A Nebraskan sentry warned the Filipinos not to cross his line of "sentry go." At 8.50 P. M. on Saturday night two or three Filipinos dashed past him at Santa Mesa. The first turned back when challenged and called. As the other two went on, Corporal Greely's rifle went off, killing one, and wounding the other. This was the Filipino signal to open fire along the whole line from Ana and Paco on the right to Caloocan along the railway lines.

* These articles upon the first military campaign are compiled by Mr. Craig from various sources, private and public, and are the most connected we have received concerning that brilliant warfare. The author does justice to the dashing gallantry of our troops, sent to war without the high discipline of European troops. He regrets that General Otis had not another strong brigade of infantry and artillery, and 500 cavalry to land at the Lingayen Gulf railway terminus, so that it could advance along the railway to Taral and Bamban, with the view to take the rebels in flank and rear, and to meet the advance of General Otis from Manila and Mololos. Mr. Craig has proved himself to be a great military writer in the London and Australian press. His graphic battle sketches of the Indian Frontiers and of the advance upon Khartoum are amongst the best yet published.

THE OUTPOST FIRING.

It was a pretty sight to see the circular smoke of opening battle: the sharp American detonation from the suburban houses and entrenchments, and the sullen smoke and flash of the rebel rifles from the dense jungle, alive with Filipinos, all inspired by the genius and courage of Aquinaldo, the wonderful "demisang of Hispanio-Tagal, with a dash of Chinese and Malay blood in his veins"; so well known in Hongkong as a patriot, but before Manila as a rebel, the Generalissimo of the Philippines, and President of the Revolutionary Government. By opening fire he had the courage of his ideas and diplomatic action, which for weeks was equal to that of Dewey and Otis. He now dared to cross fire with those masters in war. The outposts before the rebels were composed of Nebraska, Montana, North Dakota, Kansas, Idaho, Washington and California troops; with regiments from the said States, and also battalions from South Dakota, Colorado, Minnesota, Tennessee, Pennsylvania; the 14th Regular Infantry, the 3d and 6th Regular Artillery, and the 4th Regular Cavalry, with rifled carbines—all these troops forming the front line of battle firing. The rebel fire was most furious on the right side of the Pasig River. The Dakota, Montana, and Nebraska outposts and regiments kept the foe at bay until the alarm was sounded and reënforcements arrived rapidly to strengthen the commands of Brigadiers McArthur, King and Ovenshine.

THE MIDNIGHT DEFENSE.

The night attack favored a Filipino rush into the trenches and city, as the rebels knew the suburbs, but they did not rush out from their lairs *en masse* owing to the telling and destructive American fire that met their fusillade in reply. Both sides drew forth the local fire of each other, the heaviest of which was located at Mesa, Caloocan, and Galingatan. Otis and his generals made up their minds to stand firmly and furiously on the defensive all night, until daybreak, on Sunday morning. The battle became that of long shots and "long bowls in the dark" with the infantry in line ready to repulse any midnight attack. There was a firing lull for half an hour, but at 10 P. M. it rebroke out, supplemented by two guns in position at Balik-

balik, all along the rebel line, which was kept up for several hours. The guns of Dewey and the artillery of Otis could not be effective in the dark, as the targets were unseen, and the chances of assault might bring about disaster on land. The rebel fire grew heavy in the direction of Paco and Pandacan, on the right. About 10.30 P. M. Otis ordered his infantry to keep up a constant fire, and despite the darkness he brought up his artillery. The fire was terrific, but the results were not known; The Utah battery of artillery, and rifle volley firing, silenced the guns at Paco, and in an hour, the 3d Artillery silenced a heavy gun fire in the direction of Galingatan. The *Charleston* and *Concord* tried the range of their secondary guns, off Malabon, on the left flank, against the rebel lines at Caloocan, with murderous effect, staggering the Filipinos.

THE MIDNIGHT LULL.

A howitzer gun placed across the road near Mesa gave the Americans much trouble, but after midnight a second lull in battle took place. Aquinaldo was altering his defense lines and placing his troops in position to meet the expected American advance at daylight. Generals Otis and McArthur, who had stormed many of the positions in the Spanish fight, had also improved their points of defense, soon to be converted into points in the attack. The lull lasted until 3 A. M., when "Havoc" let slip his dogs of war again. The midnight air became rent with a murderous fire from both sides—the rebels beginning it. The storm of shot and shell raged furiously. The Utah and 3d Artillery ploughing up their enemy's works in the dark with effect, still keeping the foe at bay, and from forming an assault. This combat lasted for half an hour, dropping off as suddenly as it began, so excellent was the fire control of the Californians, Idahos, and Dakotas, assisted as it was by the deadly gunnery of the saucy *Monadnock* off Malate. The third lull took place, which fortunately lasted until the dull grey streaks of day began to develop in overclouded sky. Meanwhile the troops had snatched a little sleep and rest, whilst General Otis and Staff rode about from point to point, imparting confidence to the men, and giving final instructions with regard to the several lines of advance and attack, at daylight.

The plan of operations had been well designed before the battle, and every colonel knew what was required of him, and his troops. All expected that day's task to be a bloody one, as "the jungles to clear was the work to be done," and the Americans did it with glorious successes, though inexperienced in Oriental warfare.

AN HEROIC MORNING.

The area of attack was a large one. Brigades and regiments were told off to the assaults at Mesa, Paco, Pedro, Ana, Macarte, Pasai, Pandacan, Palampong, and Caloocan—a big order for only 13,000 troops, though having the support of Dewey's ships. It was Sunday morning, a day for which the demands of war never yet had any respect. The anxiously expected streaks of day came, looked for as anxiously as those British brigades in front of Feroseshah. Every man had stood to arms before Orion was departing. The pulse of battle animated our American cousins as they did at Gettysburg, and through the wilderness to Richmond and Petersburg. It was the Atbara and Tel-el-Kébir sensations of the assault over again, with a foe not to be despised. It was to be an heroic morning and a triumphant day for the Stars and Stripes; and one of humiliation for the little Filipino Napoleon. The gunners stood to their guns on board the United States warships off the coast, as those of Dundas did off the Alma, in the Black Sea. The American regiments, far from the Golden Gate and Sandy Hook, far from the backwoods and prairie ranch, outside the theory of the Monroe doctrine, but inside the influence of Oriental fame and name, stood before the masses of Aquinaldo nearly two to one, yet ready to fight for old glory "be they ever so many," as Gough said in the Punjaub. The Californian, Nebraska and Washington regiments had the honor to lead the advance, and go within the perfect mitrail of mixed fire—rifle, gun, bow and arrow. The troops were full of *élan*, military ardor, and eager to advance in that grim twilight which precedes the day.

THE DASH FROM THE TRENCHES.

Sharp the bugles sounded the advance, the officers shouting with merry voice, "forward," and the guns of Dewey's ever

watchful ships, told the Filipinos that the fun had begun. Over the trenches and out of the suburban villages darted the American troops. They soon came under the zone of terrific fire. Men dropped at every step. Lines of men advanced and rushed forward with conquering heroism, disdaining cover and reserving their fire until the charging distance was reached, as at Nakhelia. They were covered in splendid style by an accurate long range artillery fire in their rear, and from far along the bay shores upon both flanks. Not a man feared the result of the day's operations, so confident was the Staff in the fire discipline of the volunteers, now regular soldiers, on the day of battle. They met the hot defensive fire of the Filipinos from the scrub or jungle with great steadiness, and unflinching valor. The foe smote them down at every line of advance, along the long and scattered front. Death ploughed the ranks. Many fell to rise no more, but on went the determined and valorous soldiers of McArthur, King, Hughes, and Ovenshine like Britishers, the children of Wellington, to say nothing of Lee and Grant. Forward against eight or nine villages went this forlorn hope and hastily organized army in front of seventeen miles of deadly fire! It was true grit gallantry.

STORMING OF PACO.

Whilst the battle stormed or raged from right to left, and in the centre, with heroism, and splendid leading against the strong positions and chief defenses of Aquinaldo, hidden by belts of forest and covert jungles vomiting forth well directed volleys, the other brigades leapt forth. I must notice the American charges and stormings one by one, for all were heroic and grand. The storming of Paco and the capture of Santa Ana on the right was a noble affair. The Filipinos were strongly posted in that direction. Dewey's ships off Malate opened fire upon Paco and Mesa with tremendous effect, doing great execution, and demoralizing the foe on the left flank, of several hours' duration. The combat amongst the defended villages about Paco and Mesa was stubborn and prolonged, in which many heroes fell, after showing brilliant examples. There was much street fighting, farm assaults, and crushing field volleys. The Californians under Colonel Duboce covered themselves with glory in

their capture of Paco. The line and road of advance was lined on both sides by the foe in houses and mud huts, loop-holed and full of the best shots, keeping up a deadly fire all round. They even killed the driver of an ambulance wagon, fired upon the Red Cross corps, and the staff of General King. Duboce gave the order to charge with a rush down this fatal road: as gallant a charge as that of Napier, Havelock, and Outram, down the hell-fire street that led to the Lucknow Residency. The charge was successful, but with a sad loss. The foe were cleared out of the huts, and the houses burned by the rear guards. But Paco was not yet captured! The rebels fortified themselves in a thick-walled church and convent, and kept up a disastrous fire from the upper windows. For nearly an hour the battle raged hereabouts. A detachment of Golden Hornites seized a position on a bridge, and poured in a heavy fire upon the strong position. Things looked serious indeed. The Californians were unable to dislodge the stout-hearted and steady Filipinos from the church and convent. At last Duboce, at the head of a few followers, dashed at the church and convent, like young Colin Campbell, at San Sebastian, or parties of the 93d at the Secunderbagh. Captain Dyers' battery of artillery plunged shells into the church, to ease off its fire, as Duboce advanced with heroic ardor. They tore through the roof and sides like those shells of Emslie and Keppel on the Mahdi's tomb, creating the desired effect. The forlorn hope of Duboce dashed into the church successfully, scattered quantities of coal oil over the woodwork, set fire to it, and then discreetly retired upon their nearest main body. It was a gallant feat of arms. Two companies of Californians were then sent forward. They gallantly charged into the church, but, unlike Wolseley at Banks House, they did not reach at once the roof, to plant the flag. When the Idahos and Washington Guards saw the retirement of the forlorn hope, they drew up on each side of the church, and shot down the rebels like rats as they rushed out of the burning building. Only a few escaped at the rear, and most of them were captured. Fifty rebels were captured and a hundred killed, whilst 2500 women and children were allowed to pass the American lines as non-combatants. The Washingtons made a splendid charge upon Paco. In the rice fields large

numbers of insurgents were killed and wounded. After the capture of Paco, General King advanced against the lines of Santa Mesa, then within sight of his command. The troops responded with heroic bearing and alacrity to the calls of their officers. On they went in fine formation to the new and other local assaults to drive out the enemy, and clear the Manila district of the troops of Aquinaldo. Upon the right advance Generals King and McArthur captured a lot of prisoners, captured and destroyed many villages held by the rebels, *i. e.*, set them on fire like Kempster in the Tirah. It was a good way to bring the Filipinos to subjection.

FIGHTING ON THE LEFT FLANK.

We must now turn to the progress of the general battle of Manila as it raged without a check upon the right flank of Aquinaldo. General Otis' operations on his right attack were so successful that the left flank of Aquinaldo was completely turned, and many of his best troops were driven into the Pasig River, or compelled to surrender; but be it remembered that thousands escaped into the bush from Ana, Paco and Meza combats, to fight another day. When the Americans dashed out on the right, their generals on their left dashed against Galingatan and Caloocan, where strong numbers of Filipinos were entrenched in the woods and jungles. They never ventured on the offensive, and never once succeeded in driving their foes back into Manila. The Filipinos fought well under their leaders, but they lacked good arms, discipline, and military intelligence. They loved freedom with a vow, and fought for Filipino laws and love of country. The railway ran out of Manila northward past Caloocan towards Malabon. This strengthened Aquinaldo's position largely, but he did not know how to use railways in war. The Americans did, and by driving him out of those places along the line, on their own left flank, would compel their leader to take to the hills without food, and separate the other divisions of his army. General Otis speedily saw the value of a determined attack on Aquinaldo's right flank, *i. e.*, to break his fighting line and scatter his other corps into helpless masses. At daybreak the signal ran from the centre to the left "forward," and away the American

battalions went against a storm of fire that would have unsteadied the best of troops. But the gun fire of the *Charleston*, *Concord* and *Callao*, cruising off the coast, at Malabon, threw shells into Caloocan, the numerous villages and earthworks that lay before the advancing descendents of our Henrys and Edwards, Marlboroughs and Wellingtons. They dashed themselves against the hottest fire and close masses of Filipinos on the line of march, though suffering severely and under exhausting conditions. The day was as hot and close as any Australian hot wind, which told heavily upon many Americans, who fell out. Some died from sunstroke, amongst them Colonel Smith, 1st Tennessee Regiment, when leading on his battalion. The Nebraskas, Kansas, and Dakotas charged their foes with admirable gallantry and heroic success, capturing many prisoners, and the waterworks, to within 2000 yards of Caloocan, but with a severe loss in killed and wounded. In these charges the white troops took up "the white man's burden" with a vengeance, considering the slaughter they made. It was before Calcoocan that the Yygrotes fought so well, armed with the bow and arrow, instead of the Mauser and Lee-Enfield. These poor souls were literally shot off the scene, and it was cruel of Aquinaldo to place them in the fatal point of battle.

COMBATS IN THE BATTLE.

By the time that the waterworks were captured, General Otis had pretty well rolled the Filipino army out of all their original positions, excepting that of Caloocan. The naval and military fire was then concentrated upon this village and strong entrenchments. Pasai and Palampong had been stormed successfully. A thousand huts had been destroyed, a dozen villages, and the country cleared for six miles out from Manila. But Aquinaldo made a firm stand at Caloocan. It was his last chance that day for he knew that defeat would in effect make him lose much power. The waterworks were captured by General Sale without much loss, with 4 companies of Nebraskans, 2 guns of the Utah battery, and 2 Hotchkiss field-guns. They met the foe upon a hill near Singalon. They paused in the march for a moment, dashed at the foe and carried the position after a smart engagement, losing 1 killed and 3 wounded. The

foe decamped in bad order, and many parts of machinery carried off from the waterworks were unearthed, along with several naval guns, and tons of cartridges. General Ovenshine captured Paranique, and two guns, without loss. The operations around Galingatan were splendidly conducted, and at last forced Aquinaldo, by superior fire tactics, to retreat upon Caloocan. Otis now won the railway line to near Malabon, and Admiral Dewey landed near that town 600 marines and two Maxim guns. Then coöperating with the 3d Artillery and the Utah artillery batteries along the main road, covered by the Kansas regiment at the cemetery they gallantly captured a formidable position, near to Caloocan. Some natives fired upon the advanced troops from their windows, and then, losing their calmness, met their fate in rushing across the firing line. The natives also cut the telegraph line, and General Otis ordered those found doing so to be captured. The G. O. C. on Monday night occupied the Manila country for twenty-nine miles out from the city, or twenty-five miles in a line from Mesa to Caloocan. The Filipino loss amounted to 4000 killed and wounded, with many of the wounded crawling to the beach to die.

It must not be supposed that the Filipinos in those series of engagements did not fight well. They showed plenty of pluck, hardihood, stubbornness, and defiant courage, but they wanted the touch of Sergeant Whatisname. There was plenty of rallying power in them, and though checked and badly defeated they clung for a long time to the military positions of Malabon, the Pasig, the towns north-east of Caloocan, and east of Paco. The battle of Caloocan on the 10th, after what may be termed the expanding combats of Sunday—the 5th February—proved to the Americans that Aquinaldo and his troops had not retreated like a lot of Greeks, but with great tenacity continued to carry on the battles for the capture of Manila and the American army for over a month. The Americans won their village combats on the Sunday with admirable skill and heroism, and cleared the way to carry out more brilliant and gallant operations, against which Aquinaldo, however, stubborn, tenacious of purpose and able in field organization, could not hope to win before the fine valor and noble discipline of General Otis and

his soldiers. It is reported, however, that the Americans frequently charged in unpardonable broken formation, which would have told heavily against them had the foe been European. The Americans successfully drove the rebels out of all positions, and rolled the tide of battle upon the Pasig River-without indulging in much flank movement.

ROLLING UP THE TIDE OF BATTLE.

This operation requires to be told as a leading feature in the battle of Sunday. The combats of Paco, Mesa and Ana have been described, but the fighting on the Pasig, more to the left of these fortified places, was disastrous to the insurgents, who after their defeats, crowded and rallied, on their left centre. It was there that the genius of American generalship took place, where grand tactics were displayed, and heroically carried out. Aquinaldo had ordered his men to give the Americans no quarter. He had also armed them with sharp daggers to kill at close combat. He had many Mauser rifles presented to him by Admiral Dewey, whilst he had procured some Krupp and quick-firing guns, captured from the Spaniards. But all his skill and hatred did not frighten " the dare-devils of Tennessee," Kansas, Nebraska, Idaho, and the dashing Yankee volunteers, as they charged in blue shirts, kakee trousers, and soft felt hats. The American attack on the right flank was furious everywhere against mud huts, and dense jungles. The Filipinos fired from the hip and never kneeled, which made their hits so few, but the American shooting from the shoulder was terribly effective, judging from the rebel screams, and list of killed. The Filipinos did not think of such offensive charges, but expected their foes to stand and keep up a rifle duel, until the survival of the luckiest remained. Wherever " the wild Tennessee " charged with a war yell, they generally conquered. Some Americans got two guns, and carried them away, amidst the cheers of their comrades. As the foe fell back on the Pasig River, the Filipinos fought like tigers, and the troops of Brigadiers King and McArthur, like lions in pursuit. Both sides fought hard for victory as the tide of battle rose and fell. The naval guns were so well handled that Filipinos fell in sections. In some combats the Filipinos outnumbered the Americans by 5 to 1,

but still the latter drove them backwards, and into the fire zone of the warships. The Filipino rush into Manila was now out of the question. A train with reënforcements was destroyed, and half of the troops killed or wounded, by the guns of the *Monadnock*. When a big shell fell and exploded, the rebels would bolt, and the works captured in the midst of heavy rifle fire. A few lulls took place, only to change into dreadful battle thunder and flame. Some stray shots even fell into Manila, and many ladies took shelter on the warships in the bay. Not only had the Americans to face their own Mauser rifles presented to Aquinaldo, but the trenches which they charged and captured were originally made by themselves, when they stormed Spanish Manila. After the rebels were smoked out of the church at Ana, they were driven into the Pasig River, where many were drowned, like Sikhs in the Sutlej, or Austrians in the river Po. The Nebraska and Tennessee regiments did great execution with bullet and bayonet along the Pasig. The Filipinos fell back, fighting, and contesting every inch. The Utah and 3d Artillery batteries distinguished themselves all day by the superiority of their shell and shrapnel fire. General King's advance was most heroic. Many fell from the rebel fire at first, but his regiments took a terrible revenge at Paco. The Utah battery got stuck in a swamp. The rebels halted in their flight to fire as the gunners unlimbered and opened fire, driving them off into the rivers and jungles. Many rebels hid in the trees, but the American bullets made them fall down with a thud. The battle had lasted 14 hours.

THE BATTLE OF LOMA-PASAY.

All round Loma-Ana-Pasay hill the fight raged heavily. The Californians, Washingtons and the 14th Regular regiments moved out against these positions at a quick step, in beautiful line, with flags flying and bugles sounding. The 14th lost very heavily in this advance, including a gallant officer, Lieut. Mitchell. Lieut. Miles highly distinguished himself in the front. The Californians advanced, fired upon the nearest positions, and were covered by the gun fire of Lieut. Scott's 6th Battery. The Washingtons moved forward on their right, and soon

came within the jungle fire. These were supported by the Wyoming regiment, and a company of Engineers. They advanced over a plain for two miles, and carried every trench they met. The artillery covered the men effectively, driving the Filipinos out of San Pedro and Macati, where the four battalions halted victoriously. Both sides lost heavily; the rebels falling thickly in the rice fields. As the rebels' fire was often murderous during the advance, several officers proved heroic, led well. Lieut. Mitchell fell like Finlay at Atbara with the words "forward men, never mind me." Lieut. Miles led them like an old soldier. His 23 skirmishers all fell but six; he himself had a narrow escape, and the survivors had all their clothes touched by bullets. When the trenches were captured the Filipino dead was numerous. They bravely held their position under fire for several hours. Capt. Wheeler held a rebel block house for 8 hours, without loss, against heavy musketry attacks, until relieved by two companies, when all the units spread out, and delivered a telling rifle fire for an hour. The rebels liked this sort of fight, and were proud of having arrested the American advance. General Otis now ordered another general advance. The troops moved forward with a cheering rush and steady firing, but at the sight of Americans and bayonets, the whole rebel line bolted, and the formidable line of trenches was won. Here the rebel dead was astonishing, largely due to the fire of Dewey's ships. The foe fled towards the Pasig River, like the other Filipinos from Paco and Mesa, where their two Krupp guns (already mentioned) were firing desperately, at the Americans. A fight for these guns took place. Away went a column of young Americans at them in splendid style, like our heroes in the Mutiny. It denoted their British origin. The charge was not without loss, and when delivered near enough, a small launch with machine guns appeared, the position was taken with a rush. A lot of rebels were also captured on the river bank. So far, the plans of General Otis were successful in the centre, and on his right. The G. O. C. had been everywhere present in the battle, directed all the movements, and was also in touch with the whole 17 miles of battle, thus showing he was well served by his officers. Aquinaldo was now in full retreat to the north—to Malabon and Malolos, where his

reserve forces were said to be about 50,000 in number. Nearly every house now flew white flags, and the rebels were badly beaten, but not subdued. I will pass the easy operations at Ilo-Ilo, but the battle of Caloocan on the 10th was a fight worthy of record.

ITS COLONIAL IMPORTANCE.

Whilst the Australian world is absorbed in perfecting its colonial armies and in fighting the enemies of federation, not far from Sydney and Cooktown are battles, as important as those on the Nile, and more glorious than those of Cuba or Samoa, being fought out against the brave Filipinos of Luzon, with a dash and vigor worthy of the best traditions of the Anglo-Saxon race. The campaign of General Otis—the G. O. C. of the American army—from Manila to Caloocan, and along the Northern railway line to Malabon and Malolos, was splendidly conducted. The whole country to those places was marked with continuous barricades of field entrenchments and fortified positions almost worthy of the genius of Vauban and Burgoyne; in fact, when the Filipino defense became developed, it consisted of a series of firmly held little Torres Vedrases, all of which had to be rushed, stormed, and captured by rifle fire and bayonet. The warfare going on is of no mean order. As the terrain resembles many parts of Australia, with forest-clad hills, dense scrub or jungle, and numerous military ridges, the battles before Manila are full of deep interest to those whose statesmanlike ideas are urging on those colonies for place and power, in the broad Pacific.

THE MILITARY SITUATION.

I will skip the Sunday battles around Loma-Pasay and the district of Caloocan just now, and present my readers with the more effective, stubborn, and brilliant fighting which recently took place, after the timely arrival of the reënforcements of General Lawton, another old hero of the backwoods, and of Santiago. General Otis found his force too few to advance in every direction out from Manila, and defeat the foe in every-day battles. It was a large order, and his numerical weakness was the cause of his retirement and Tirah recaptures, meaning a waste of men, energy, and valor thrown away. When the re-

enforcements all arrived he designed the present forward movement, not yet ended. His divisions, brigades, and plan of campaign were all changed, and Aquinaldo had exhibited a daring and commanding capacity that astonished everybody. It must have taken him months to design those strong trenches upon trenches to block the advance of Otis upon Malolos and San Fernando. His military resources are wonderful, whilst his hold upon the Filipinos under constant defeat denote him to be a hero and organizer. His army supplies came from South Luzon, where he has a small-arms factory and powder works, his transit being safe along the bays, rivers, and coasting east, where a little German trade was reported to exist. To counteract this a lot of United States men-of-war were ordered from America, and General Otis managed to fit out a lot of "army gunboats" to patrol these waterways, and that day which placed them under weigh, deranged the Filipino supplies, just as the Kertch operations destroyed the Russian supplies for Sebastopol.

MODE OF WARFARE.

General Otis's reorganized army began its general advance to crush the army of Aquinaldo, and stamp out the insurrection, by the 25th of March. The previous battle had not exhausted the power of the Talagos, nor broken the Filipinos mobilization enough to make them sue for peace. They had evaded meeting the Americans in the open field in large force up to March 17th. They were known to be concentrating around Malolos, along the Northern railway line, behind trenches and block houses in the bush, and edge of woods where their range of fire could tell heavily on the rushing Americans. As they were driven by the heroic Generals McArthur, Hall, Hale, Wheaton, and Otis —not the G. O. C.—from trench to trench, they presented great rallying power behind their fresh lines of trenches and secret jungle paths. The "Yankees" were under fire day and night, like the troops of Lockhart and Bindon Blood in India. Aquinaldo was reported to have 30,000 riflemen in his ranks, and 30,000 other men armed in a variety of ways. The theatre of war was in rough country, so broken by gullies, hills, rice and cane fields, that was sure to impede the advance of Otis's troops, and delay them under a heavy fire. The rebels knew

every rood of the ground, and expected that the Americans would rush over it headlong, which they did, but gallantly overcame all obstacles, and hostile fire. Aquinaldo had proclaimed war to the knife against "all foreigners," and stated to his men that the Filipinos of Mindora, Paney, and South Luzon were rushing to help them. The arrival of American reënforcements had braced his generals and rebel army up to the highest pitch of ardor and resolution. Brigadier Otis received three light gun batteries and six Hotchkiss gun batteries, to be used as mountain artillery.

PLAN OF CAMPAIGN.

The American army force of cavalry, artillery, and infantry, totalized about 42,000—a force quite sufficient, assisted by the ships of Admiral Dewey, to put down and smash Aquinaldo. General Otis's plan was to advance and cut the rebel army in two before they knew the object, as it would cut him off on land from South Luzon, confine him to Northern Luzon, where he hoped to capture Aquinaldo, his provisional government, and force his fighting army into unconditional surrender. For this purpose General Wheaton stood with his brigade in reserve on the 24th at Caloocan, Brigadiers Otis and Hale on the 23d, and Brigadier Hall on the 24th, at the Waterworks. Division-General McArthur was the "Archie" Hunter of the advance, the Westmacott of the battle, the Hector Macdonald of the fight. General Lawton was in charge of the southern operations if the Filipinos showed fight in or out of Manila. The G. O. C. had his headquarters near Manila, directing the operations *à la* Moltke, as he had not forgotten the bold and attempted burning of Manila and suburbs, part of the enemy's tactics and plans. The details of battle will show that General McArthur did cut the rebels in two, gained a succession of victories, which, however, were slightly indecisive. The rebels were driven back, but they again showed up strong in fresh concentrations, without capturing the Filipino Arabi Pasha. Otis had to employ all his forces, and conducted his operations upon a larger scale than before. His task was arduous and constant, each success being followed up by another battle, and the foe were savage and untractable. Otis's plan of battle was well thought out;

the movements were generally made with smart precision; the positions had all to be taken with a rush, and General Wheaton, late in the day of the 2d, had a terrible hand to hand combat on the left of the advance, where an isolated regiment made a gap between his two wings. It will be seen that the Filipinos stood more on the offensive than they had hitherto done, frequently advancing to meet the yelling and heroic American advances. Aquinaldo's plan was to let his foe rush over the open country until well within range of his hidden trenchmen, and then let the Mauser rifles pelt them with lead and destructive effect. But as the Americans everywhere rushed forward with Redan and Dargai valor, the rebels bolted. It was grand to see how the young and hardy "Yankee" Volunteers charged up to the death-dealing entrenchments. Blood told when well led by brave and intelligent officers. The fights before Manila should give confidence to the Volunteer branch of the Australian defense forces—the P.P. regiments as well—all burning now to defeat Boers, or some possible invader. The Anglo-Russian agreement is not going to stop the dangers of invasion, or sudden war. The Americans rushed over the zones of open fire with steady discipline and gallant manner, just as British and Indian troops have had to do upon so many recent occasions, with the heroic track of killed and wounded behind the attack. The Volunteer courage is indisputable. The price of victory proved to be heavy, but it is the price which great nations have to pay for the expansion of empire. Cuba was a walk over, but a long and regular campaign had to be undertaken by the Americans in the Philippines.

MCARTHUR'S TACTICAL ADVANCE.

The day's objective was Nevalicken and Malabon, the two keys of the rebel position commanding the railway and the advance of General McArthur's brigades of Hale, Hall, Wheaton and Otis, on the northwest of Caloocan and the waterworks. The Filipino force was estimated at 12,000 men. All was ready long before daylight on the 25th of March. The four brigades were in position to begin the day's work. So far in the grey dawn the rebel chiefs had not anticipated the American rush. But our brave kindred had a stiff and dangerous task before

them, and many a thought must have been cast over the Pacific towards those States which gave them birth and endearment. All stood there in the lines before Caloocan with that heroic ardor so openly displayed under the attacks of Lee and Grant, Longstreet and Sheridan, when the South was against the North; *but now they stood in line as comrades*, as one grand united army confronting the foes of their country, not in Mexico or Cuba, but in the far-off Philippines, and the Orient of the East. The men knew that the rebellion must be put down, and that there must be no advance followed by retirements. The Filipinos had found a tougher foe than they expected. The situation in Manila city was quiet the night before. The operations were far from the city limits. The firing could not be heard. The old battle lines in front of the city were firmly held, and could not be uncovered by the foe. The scenes of battle may be traced along the railway line north of Manila and Polo.

In these first operations against the rebel lines the direction of the American Staff showed a want of intimate knowledge of the ground in the theatre of war, of how to act in skirmishing and battle firing against vendetta warfare, and more cohesion in battle discipline. The troops fought under the strains of heavy marching, excessive night duty, the want of more cavalry and 15-pounder guns, for the sake of moral effect, and to smash the foe out of their trenches in the scrubs. Moral effect and advantages generally upon an enemy, especially if it is Asiatic and half savage. In the recent wars the moral effect of a large proportion of horsemen and machine guns produced great moral advantages. The ordinary drill-book tactics should be forgotten in cases where the assaulter has to alter his tactics to counteract and defeat those of the enemy. The American scouts are good against Red Indians but not against Filipinos in the Philippines. General Otis had not numbers to make more use of the golden modern rule—not to attack a position in front without supporting it on one or both flanks against the foe, to cut him off, and threaten his line of retreat.

DESTRUCTION OF MALABON.

Before Aquinaldo evacuted his old headquarters at Malabon, to the entrenchments of which he clung with soldierly am-

bition, he set it on fire that night. Its flames lit up the country for miles, and though General McArthur was anxious to save the town for the sake of the inhabitants, his Brigadier, Wheaton, posted with his troops along the railway line, could then render no assistance to save it. Late in the afternoon, whilst Polo was being stormed, the gunboats up the creeks managed to bombard the town, rendering it untenable. The rebels managed to get away most of their arms, stores and war material to Malolos, where the rebel leader now fixed his head-quarters and government, 28 miles from Manila, further along the railway. It was from Malabon that the rebels had delivered all their blows against the Spanish army, and carried on their insurgent government. The Spanish generals tried in vain to penetrate the lines, as McArthur's brigades did, but the backwoodsmen of Dakota and Kansas followed up their "trail" amongst these hills and covered trenches in a way that surprised them. The rebels had also found out that the Mauser rifle in their hands was of longer range than the Springfield rifle in the hands of the dashing volunteers of Brigadiers Hale and Hall, and were able to open fire sooner than the stormers in line. It was the fate of the German needle-guns against the longer ranged French rifle in the Franco-German War of 1870-71. But Otis had no guns to form or place massed artillery in line to make up for effective rifle fire. The brave volunteers have since been armed with the more deadly and longer ranged Krag-Jorgensen. The rebels set all the large buildings and rice mills on fire, leaving only the stone Catholic Church standing. The people fled in a hurry, taking everything with them to the hills, and many of the rebel soldiers took refuge in Navatos and Cusag, but they ultimately surrendered as they were driven out by the naval guns of the *Helena*, *Callao*, *Ningdepan*, and *Laguna*. The burning of Malabon was complete. The scene of war by midnight was terrible, as the Americans encamped along the Talighan River. Wheaton held the field from the line of railway to that river, and as the bridge was destroyed he had to keep up a continuous fire in reply to the "sniping" and volleys from the opposite side. The men had little rest, as the rough ground traversed, the sun heat endured, and the repeated combats had knocked them up. Several times the rebels left

their trenches and charged the Oregons, drove them back, but the Oregons, being reënforced, returned to the attack and finally drove them into Malabon.

PASSAGE OF THE TALIGHAN.

The next day's fighting was also heavy and of the most desperate description. The passage of a river is often a dangerous move in the face of the enemy. The engineers set to work to repair the blown up bridge, with new flooring and some beams, over which a transport wagon or a field-gun could be carried. Beyond the river were the villages of Malinta and Magcanya, the next military objective. The operations promised to be very stiff, but General McArthur determined to advance and capture the positions, giving them no time to rally, for the rebel tactics were indeed—

> "He who fights, and runs away,
> Will live to fight another day."

The Washington, Oregon, and Kansas troops were to lead the advance. The banks of the river were covered by a blockhouse, of Spanish design, and a series of entrenchments, well garrisoned. Brigadier Wheaton got some of his men across the river during the night, half a mile south of the railway, near Oagapon. The Americans numbered 3000 for the passage of the river and the attack upon Malinta. Brigadiers Otis and Hale fronted Magcanya, and Wheaton Malinta. By a ruse, the Oregons managed to cross on the left, and the 22d U. S. on the right, supported by four companies of the hard fighting 23d Infantry. This was effected with a wild cheer. Once over the United States troops had to cross a clear half mile of open space, and in rushing they lost severely. A crest or ridge had to be seized before dealing with the village of Malinta, so strongly fortified. Magcanya was fortified by trenches, with intervals of 300 yards between small forts. All looked so quiet in the rebel lines that they thought the place was deserted. But a trap was laid for Wheaton's troops by the cunning Filipinos. The Washingtons skirmished cautiously through some long grass. The Brigadier and Staff directed them under a severe fire. By steady advancing, good firing and leading, the rebels failed to stop their charges. On the "Yankees" went

with ardor and heroic fortitude. Nothing daunted them in the shape of fire. Grey headed heroes of 1864, and the Indian fights, led them as of old, just as if they had the Sioux or Sitting Bull camp in front of them. The fire raged for some time, but the Americans, without the slightest signs of "funk" went at their foe in daring style, and by 1 P. M. Malinta was captured by the advance guards. McArthur soon joined them with the main force of his division from Novalicher and Polo. The G. O. C. resolved not to enter the burning town of Malabon, but next day he ordered the re-advance upon the railway line in the direction of Malolos, where Aquinaldo was again reported to be strongly entrenched with his rallied army. The American loss on the 26th was 45 killed and wounded.

THE ADVANCE UPON MARILAO.

General McArthur, with his cavalry as scouts, made a careful reconnaissance of the bush and hills along the road to Malolos. The scouting was superb, and he soon found out the true position of Aquinaldo in the bush land. He gradually pushed forward next day, and drove in the rebel pickets, capturing many prisoners. Thirty villages lay between McArthur's front and Malolos, with the rebels holding strong positions at Bulacar and Guiz, and these were first to be attacked. During this advance an incident occurred at Pasig, held by some Washington volunteers. A large crowd of Filipinos collected in a storehouse, with the French flag flying. A short, sharp, and gallant fight took place near it. Whilst some men replied to the rebel shooting, a forlorn hope advanced to set the storehouse on fire. They did so. The Washingtons in force advanced, when suddenly the rebels appeared on a burning balcony, and fired a volley. The Filipinos seeing it was no use fighting further, began to retreat towards Malolos. A thousand rebels covered their retreat by making a strong stand behind their trenches at Marilao, over the river of that name. In this affair 6 Americans were killed, 2 officers and 40 men were wounded. This event completely cut off Aquinaldo's supply of ammunition from the South, but still he fought hard to stop the advance upon Malolos in the North. McArthur was now three miles beyond Polo, nine miles from Manila, and 15 miles

from Malolos. The line of fight had been along the railway line, and the G. O. C., like Kitchener, used the captured cars for troops and stores to the best advantage. The men's legs were saved by railway transport, until the staff officers began to feel the presence of a new series of redoubts, and long lines of trenches. The troops were reformed in lines of battle once more, to indulge in the driving out process in the advance, and assault. McArthur captured Marilao in clever style, but the fight had been pretty severe all day, forty men being killed and wounded. Aquinaldo commanded his troops in person. The three days fighting had cost the Americans 30 killed and 215 wounded. The South Dakotas, the Oregons, and Kansans, bore the brunt of the battle, yet all battalions showed how eager they were to be in the several trenches first. The Dakotas made splendid charges, with only the Springfield rifle, dislodging the yellow rebels from behind their sand-bag batteries and bamboo ambushes. When the enemy bolted out of Marilao, the Dakotas rushed to the highest house, and "high above the topmost roof the *banner of the United States* flew." The cavalry went in pursuit, killed a hundred rebels and captured several hundreds. Aquinaldo had 5000 men with him; the Dakotas had 10 killed, in fact the Dakotas "won the day."

THE STRUGGLE FOR MALOLOS.

The capture of Malolos was not done without a stern combat. At 6 A. M. McArthur again sounded the advance like a Bindon Blood and Lockhart, always going straight at the foe, with much skill and devoted valor, in Bocara and Bigaa—7 miles from Malolos. Along the railway line the landscape was a country village, rice and cane fields, mixed with dense scrub. As Aquinaldo retreated he destroyed many villages, the railway and telegraph lines, which, however, were speedily reconstructed. The spirit and discipline of the young Americans during the week's severe fighting never degenerated, but marched with a firm step from victory to victory, all the more so, when the recent defeats of the rebels were sure to bring about the beginning of the end of the rebellion. The Bocara bridge, being unbroken, largely contributed to the speedy capture of that place. American reënforcements continuing to

arrive made a deep impression upon the rebel staff, and whilst McArthur was within gunshot of Malolos, Aquinaldo was sending his headquarters to be fixed at San Fernando, ten miles further away. In the afternoon of the 28th March, the General left Bigaa for Guiguinto, and soon the fierce and desperate field entrenched battles began, McArthur arriving at the latter place at 5 P. M., with the loss of 70 men killed and wounded. The river was crossed upon pontoons under fire, and the artillery guns were passed over the bridge at Guiguinto by hand, the mules of the batteries swimming the stream under a hot rebel Mauser fire. The main bodies of infantry were advanced over the railway into battle on the rebel side, nothing daunted by Aquinaldo disputing every inch of the way to Malolos. They had, by their forward movements, stopped the pot-shot firing into camps at night. The Americans carried their flags everywhere with them in the battle advance. The rebels were being forced back slowly and successfully, though they mustered in strong force at every military point of defense, over broken and treacherous country, for 28 miles from Manila, all fortified with the art learned from the Spanish, as specially instanced near the large villages of Malinta and Marilao. Many a Dakota and Oregon man bit the dust before these towns in the desperate rushes to capture them. The South Dakotas and the 3d Artillery dismounted, and led by Colonel Frost, were everywhere in the front rank before Malolos, and repulsed the Filipino army with great slaughter in the trenches, but with the loss of 3 officers and 4 men killed, and one officer and 22 men wounded. The destruction of the railway by Aquinaldo greatly impeded McArthur's advance, yet it was wonderful to see how the United States Engineers speedily repaired it, enabling the General in the advance to go forward in the fray. The "army" gunboats on the Balacan River followed the General's operations, and greatly covered McArthur's advance. The rebel general burned the towns and villages as he retreated. It was a scene of great conflagration—it was war in its worst form. The 23d Infantry had done so much fighting that it was recalled from the front, and replaced by the 3d Infantry. The grand charge of the South Dakotas and 3d (dismounted) Artillery will never be forgotten. They charged across the open

east from the railway to the edge of the jungle, filled with a strong force of Filipinos, and bayoneted them. The total day's loss was 10 killed and 60 wounded. Aquinaldo upon being so well defeated, fled with his troops to San Fernando. At the close of the battle, General Garcia, a native Filipino leader, with 1000 native riflemen and 4000 "Bolomen" camped on the Marilao River, in the rear of McArthur, to help that general in the defeat of the Filipino army. Evidently the natives, like all Orientals, believe in being "on the side of the heaviest battalion." The gallantry of the Filipinos had won the respect of the brave Americans, indeed, "their fighting capacity astonished everybody." During February and March the American loss numbered 157 men killed and 864 wounded. Once or twice General Otis's Brigadiers had to fall back upon their previous camps, as our brigades had to do on the Indian frontier. American officers in the hilly warfare along the northern railway line from Manila should remember Colonel Neville's remark: "After any naturally strong position has been captured, it should, if possible, be held; but if it is found necessary to withdraw the victorious troops, for want of water or other reasons, it is desirable to do so to the front, *i. e.*, in the direction of the enemy's retreat." The reason for this is that a savage foe regards any retirement as a sign of weakness, and the foe in their ignorance is apt to attack rear guards and reoccupy their lost positions, and a new fight in the morning, with all its losses, has to be repeated, as at Dargai and several times beyond Manila.

THE BOER WAR IN SOUTH AFRICA.

IN order that the readers of the JOURNAL may have a comprehensive idea of the war in which Great Britain has been compelled to place more men in the field than she has ever had before, a description of the region in which the operations have so far been conducted seems indispensable.

The theatre of war, from being confined to a small triangle in the extreme northern part of Natal, has extended southward to embrace the whole of Orange Free State and the northern part of Cape Colony, the Drakensberg range of mountains appearing to be the defensive line of operations of the Boer army, west and north of which flows the Orange River, the boundary line between Orange Free State and Cape Colony—a second line of defense for the Boers. The Buffalo River, which is an affluent of the Tugela River, is a part of the frontier between The Transvaal and Natal. In the extreme north where the fighting first began, about Glencoe and Elandslaagte, the country is very broken, but to the south of Ladysmith it is rolling. The Drakensberg range of mountains forms a kind of eastern border to the plateau which occupies the central portion of South Africa. Seen from the Indian Ocean it appears much more elevated than from the interior, which is itself very high. Natal is entirely on the sea side of this range. In looking at the country from the sea the range appears to descend by a succession of terraces, like a gigantic stairway, down to the borders of the ocean. The plateaus are cut with deep gorges. The brooks and rivers which traverse the beds of these gorges flow rapidly through walls of rock, where they form numerous chutes.

The situation has been summed by the *Army and Navy Gazette*, to December 1, as follows:

"The development of the situation during the past week has been on lines perfectly intelligible to military students, but liable to considerable misconception on the part of the lay public. The latter have been very naturally impatient for news of

a more or less decided success, and have been somewhat disappointed that, with such a considerable force as is now known to have been landed from the transports, no comprehensive forward movement has yet been made in Natal. It has been computed that in Natal there are some 14,000 troops available besides the 10,000 who are shut up in Ladysmith. General Gatacre's division has been steadily arriving at East London and Port Elizabeth, and on the Orange River, under Lord Methuen, the Guards' Brigade has been concentrated and an additional so-called 9th Brigade been formed, making in all a force of between 7000 and 8000 men. One way and another our troops in South Africa must number considerably more than 40,000, and of such a force great things are, as a matter of course, expected. But military men know well that before a mixed collection of units can be got satisfactorily to work after a long sea voyage, there is much to be done in the way of preparation and organization if any appreciable results are to be attained. In the present case the process of settling down has not been assisted by the absurd adherence to the army corps system, for which the War Office seems primarily responsible. For years past many most competent critics have inveighed against the army corps as a war unit utterly unsuited to our requirements. Yet the War Office, on an occasion in which the fatuity of this organization for the purposes of our foreign expeditions was demonstrated with more than ordinary clearness, obstinately concluded to adopt it, with its bloated staff and its miscellaneous odds and ends of attached corps. What has been the result? Already the army corps has not only broken up into what Mr. Mantalini would call "demnition little bits," but the bits themselves have become hopelessly mixed. In Natal Sir Cornelius Clery has under him one of Sir William Gatacre's brigades, and in other directions it is clearly evident that the so-called army corps no longer exists except on paper and in the fond minds of its red-tape creators. If the war serves no other useful purpose, the fact that it has exploded a mischievous myth which has undoubtedly cost us a good deal of money, retarded our efficiency, and excited the contemptuous amusement of continental critics, must be laid to its credit. Apart from this cause of delay, the divisional generals in South

Africa as well as the General Commander-in-chief, have had transport difficulties to grapple with, and must further have been hampered by the fact that it is never possible, or at any rate desirable, to work horses hard immediately on disembarkation after a long voyage. Accordingly it is not surprising that the first success to which we shall allude presently has been long of coming, and that even now we should be without news of developments, more particularly in Natal, which it is essential for the maintenance of British prestige should not be much further deferred.

"In Natal the course of events has been somewhat remarkable. After the armored affair of the 15th inst., a distinct effort was made by the enemy against Estcourt, but was easily repulsed by the aid of the naval guns. Foiled in their frontal attack the Boers now made a detour, and two or three days later we heard of them to the south of Estcourt, where they proceeded to seize and occupy the Highlands station, thus cutting the communication between Estcourt and Pietermaritzburg in precisely the same manner in which the isolation of Ladysmith had previously been accomplished. Meanwhile a British camp under General Barton had been formed on the Mooi River, and into this the enemy threw some shells, apparently without doing any damage. At the time of writing an artillery duel is said to have taken place, but there are no details of further fighting, although it is evident that an engagement must follow immediately. We can no longer submit to a prolonged interruption of our railway communications, and General Clery, who now has command of all the forces south of Ladysmith, would be only too glad of an opportunity of inflicting a sharp blow. At the same time caution is obviously necessary, more especially as General Barton's scouts have found a large commando with artillery advancing from the north-west via Fort Nottingham, presumably with the intention of threatening Pietermaritzburg, and a still larger force is reported in the neighborhood of Howick. It is not yet clear whether this betokens a gradual breaking up of the main force investing Ladysmith and a general movement of the Boer forces in Natal to the south. But a tribute of sincere admiration cannot be withheld from the enemy, the latest development of whose strategy certainly supports the

view that there are brains at work more able than either those of General Joubert or Colonel Schiel. Risky, perhaps suicidal, as it is, the interposition of a Boer force between Escourt and the Mooi River, and the despatch of another force to threaten Maritzburg is unquestionably a smart idea which, if our preparations had been on a smaller scale, and less carefully carried out, might have caused us an infinity of trouble. As it is, the insignificance of our mounted force south of the Tugela hampers us greatly, and unless General White, who rumor has it achieved an important success by a sortie last Sunday, can spare some of the cavalry and mounted infantry with which he is well supplied, any success which General Clery may gain will be largely discounted by his inability to follow it up. On the northern borders of Cape Colony the position of affairs has been almost equally unsatisfactory. Owing to the fact that one of his brigades has had to proceed to Natal General Gatacre was for some time at Queenstown, with little more than a single battalion to support him, while the enemy, having occupied Aliwal North and Jamestown, were threatening a further advance and unfavorably impressing the Dutch residents in the neighborhood with our inability to withstand it. This state of affairs, has, however, since been to some extent remedied, and Sir William Gatacre has commenced a partial forward movement towards the Orange River, which, with the additional troops at his disposal, may be expected at no distant date to lead to some satisfactory fighting.

"On the Orange River things have taken a better turn, and a distinct success has been scored. In the early part of the week Lord Methuen had moved out from Orange River Station with a force numbering some 6000 men, and at daybreak on Thursday he made a determined attack upon the Boer position at Belmont. The position was strongly held, and it became necessary to carry three ridges in succession. The victory was happily complete, the enemy's loss being very severe, and forty prisoners being captured. The casualties on our side were three officers killed and nineteen wounded, and fifty-five rank and file killed and 128 wounded. It will be noted that the loss in officers is considerably less than might have been expected in such a hard-fought action, in which we may be sure that, as usual, the commissioned ranks exposed themselves freely. Presumably

this is the result of the orders which have been issued with reference to the abandonment by officers of this column of every sort of distinctive mark. The precise significance of this smart little battle it is not easy at present to estimate. Much depends on whether the Belmont force was strongly reinforced from that which has been investing Kimberley. If the latter is still as strong as it has been made out to be, it is probable that a considerable engagement will take place between it and Lord Methuen's column in the course of the next day or two. Such a result is greatly to be desired. There are no strong positions round Kimberley, which a force of such dimensions could hold with any chance of success against an enemy thoroughly mobile and well equipped, and, moreover, flushed with a recent success. A blow, moreover, inflicted upon a commando said to number 7000 men would be one of great significance in determining the fate of the campaign. Neither at Dundee, Elands Laagte, nor Reitfontein have we had anything like this number opposed to us, and costly though such a victory might be, its moral significance would be enormous. If, on the other hand, discouraged by the news of the Belmont fight, the force now investing Kimberley retires along the Modder River—Jacobsdaal Road to Bloemfontein, it seems quite possible that Lord Methuen will follow it. Such an invasion of the Orange Free State, more especially if coupled with a simultaneous advance on the part of Sir William Gatacre, would tend to a more complete demoralization of the enemy's plans than anything which has hitherto occurred. As for Kimberley, of which we have news up to the 17th inst., the investment of that town may be said to have already been to all intents and purposes raised. It is earnestly to be hoped that a similar result will shortly be apparent in the case of Mafeking, the latest news of which is dated the 13th instant. It is much to be feared that the devoted garrison must have suffered considerable privations, and it is high time these were put an end to. It is essential, too, that something should be done in the way of repairing the damage which has been done to the railway between Mafeking and Kimberley, with a view to the due development of a combined advance at an early date on the Transvaal capital.

"No sooner had we begun to appreciate the good tidings of

the battle of Belmont, fought on the 23d ult., than intelligence was received of another sharp action a few miles north of Belmont on Saturday last. Moving out in the very early morning with the 9th Brigade, mounted corps, naval brigade, and two batteries, the Guards following with the baggage, Lord Methuen found himself opposed near Graspan by 2500 Boers with six guns and two machine-guns. The enemy were strongly posted on the heights, which the artillery commenced to clear with shrapnel at six A. M. The naval brigade and infantry then assaulted, and desperate fighting ensued, which lasted till ten A. M., when the heights were carried. The utmost gallantry was shown by the naval brigade, which lost heavily, Commander Ethelston, of the *Powerful*, and Major Plumbe and Captain Senior, of the Royal Marines, being included among the killed. Early in the action the Brigade of Guards was also briskly engaged in repelling an attack made by 500 of the enemy on the rear guard. Of the 9th Brigade, the 1st Battalion Loyal North Lancashire Regiment and 2d Battalion King's Own Light Infantry are reported to have specially distinguished themselves, while the fact that one battery fired 500 rounds is sufficient indication that the artillery were not idle. The enemy fought stubbornly, and over thirty killed and fifty wounded were known of. The blow would have been more severe if effective pursuit had been possible, but the 9th Lancers, who were placed to intercept the line of retreat, were unable, through the difficult nature of the ground and effective resistance from a well-occupied kopje, to make much impression. After this striking little action the British force halted a day at Graspan to rest and replenish ammunition, but a reconnaissance was sent out on the Sunday, in which the 9th Lancers were again engaged.

"On Monday, the 27th, Lord Methuen again advanced, and on Tuesday in the early morning a reconnaissance found the enemy strongly entrenched and concealed near Modder River. Beyond the statement that the river was full and that there were no means of outflanking, there is at the time of writing nothing to indicate the position which the enemy had taken up. It is uncertain whether the position in question was on the near or farther side of the river, and much ingenious speculation has been lavished on the discussion of this point. The

weight of the evidence seems to be in favor of a position on the southern bank of the river, at right angles to it, with one flank resting on the river and the other bent back to prevent a turning movement, but the matter cannot possibly be decided until further details are available. As to the fight itself there is happily less dubiety, although even here it cannot be said that the early dispatches are at all as conclusive as could be wished. All that is certain is that the fight lasted for ten hours and was of the most desperate description. In fact, Lord Methuen describes it as "one of the hardest and most trying fights in the annals of the British army." The men were without water or food in a burning sun, and opposed to a Boer force 8000 strong with two large guns, four Krupp guns, and other artillery. The two batteries of artillery are specially mentioned, and General Pole-Carew, commanding the 9th Brigade, is mentioned as having been successful in getting a small party across the river, gallantly assisted by 300 sappers. Eventually the enemy were made to quit their position, and on the following day it was announced that the railway and telegraph had been opened as far as Modder River. So far the complete list of casualties has not been received, but it is known that Lord Methuen himself was slightly wounded, and that among the killed were Lieut.-Colonel Stopford, commanding the 2d Battalion Coldstream Guards, and Lieut.-Colonel H. P. Northcott, C. B., Leinster Regiment, the latter an officer with a distinguished record of African service, more especially on the Gold Coast; the former, a well-known and popular Guardsman and an ex-commandant of the School of Instruction for Officers of Militia and Volunteers.

"In the absence of fuller information it is impossible to estimate the effects of this remarkable action, and, as has already been noted, considerable obscurity still prevails as to the action itself. But one fact is clearly apparent, namely, that Lord Methuen's advance from Orange River Station, which commenced on the 21st ult., has been a very brilliant and almost sensational performance. Three such actions as those at Belmont, Graspan—or, to adopt another local designation, Enslin—and Modder River have not often in the military annals of the world been fought by a single small force in the short space of six days. The stubborn tenacity of the enemy, and the

magnificent and resistless gallantry of the British troops, have alike been in the highest degree noteworthy. At Belmont the bayonets of the Guards carried all before them; at Graspan the naval brigade were evidently conspicuous for that glorious dash which has invariably distinguished naval brigades whenever engaged side by side with their military comrades; at Modder River the artillery had a specially good chance of showing what modern guns served by the best-trained corps in the world can do, and made the most of it. But the last-named action was, of course, tactically and strategically speaking, on an entirely different plane from that on which the other two were fought. The effort made here by the enemy was, if not a supreme one, at any rate of a very well-defined and serious character. In order to make it the Boers must have not only withdrawn the bulk of their forces from Kimberley but from Mafeking also, and late news received from both garrisons seems to indicate that the relief of the tension was observed and appreciated. From Kimberley "all well" has been reported up to November 23, and from Mafeking to November 20. From the former some unimportant skirmishes were reported by Colonel Kekewich, who added that the health of the garrison was good and the water supply plentiful. Colonel Baden-Powell's little garrison seemed to have been much harassed by the continued bombardment, but to have responded with good effect by pushing out advanced works and otherwise maintaining an attitude of indomitable pluck and perseverance.

"Turning to Cape Colony, we find General Gatacre's advance from Queenstown, which was foreshadowed in our last issue, fairly commenced, but as yet there are no further developments.* There were previous indications that the enemy were beginning to feel a little apprehensive of General Gatacre's movement, which, moreover, has had unquestionably an excellent effect upon the wavering loyalty of the border Dutch. Much, however, depends upon the question whether the Boers will make any resolute stand in this quarter. If they do not, Gatacre's advance must, owing to the comparative smallness of

* Gen. Gatacre met the Boer army at or near Stormberg and was severely repulsed, losing over six hundred men, killed and captured, and 17 officers wounded.—*Editor.*

his force, be conducted very cautiously, unless Methuen's victorious progress towards Kimberley has the effect of seriously disorganizing the Boer strength all along this line. In Natal the position is still obscure although it may be cleared up at any moment. On the 23d ult., the day on which the battle of Belmont was fought, Hildyard, who had moved out of Estcourt the evening before, engaged the enemy at Willow Grange. The action appears to have been indecisive, inasmuch as the enemy reoccupied the position from which they were ousted at the point of the bayonet. But the Boer loss was heavy, and the action was followed by a general retirement of the enemy from the south of Estcourt towards Ladysmith, thus restoring the communication between Estcourt and Pietermaritzburg. Simultaneously with the Boer retirement the British troops under Hildyard advanced to Frere, and an early engagement on the bank of the Tugela is not improbable. The river is said to be in flood, but as yet we have no authentic information regarding the bridge near Colenso. From Ladysmith the latest news has been provided by a telegraphist who left the place on the night of the 25th and made his way to Weenen. He confirms the news of the brilliant repulse of the enemy on November 9, and says that since that date no attempt had been made to attack Ladysmith in force. Our total casualties had been astonishingly small, only eight men having been killed during the siege by shell and only 100 killed and wounded in all the actions round the town. This message hardly lends color to the sensational reports current on the Continent to the effect that Ladysmith had fallen, reports to which no sort of official credence has been attached. The reticence observed by Sir Redvers Buller in regard to the operations in Natal is naturally close, but it is quite improbable that another week will pass without our hearing, not only of the relief of Ladysmith, but of preparations for an advance from this direction as well as from Queenstown and Orange River."

Reprints and Translations.

MILITARY PREPAREDNESS AND UNPREPAREDNESS.

By THEODORE ROOSEVELT.

(From the "Century" Magazine.)

AT the outbreak of the Spanish-American War, M. Pierre Loti, member of the French Academy and cultivated exponent of the hopes and beliefs of the average citizen of continental Europe in regard to the contest, was at Madrid. Dewey's victory caused him grief; but he consoled himself, after watching a parade of the Spanish troops, by remarking, "They are indeed still the solid and splendid Spanish troops, heroic in every epoch—it needs only to look at them to divine the woe that awaits the American shopkeepers when brought face to face with such soldiers." The excellent M. Loti had already explained Manila by vague references to American bombs loaded with petroleum, and to a devilish mechanical ingenuity wholly unaccompanied by either humanity or courage, and he still allowed himself to dwell on the hope that there were reserved for America *des surprises sanglantes.*

M. Loti's views on military matters need not detain us, for his attitude toward the war was merely the attitude of continental Europe generally, in striking contrast to that of England. But it is a curious fact that his view reflects not unfairly two different opinions, which two different classes of our people would have expressed before the event—opinions singularly falsified by the fact. Our pessimists feared that we had lost courage and fighting capacity; some of our optimists asserted that we needed neither, in view of our marvelous wealth and extraordinary inventiveness and mechanical skill. The national trait of "smartness," used in the Yankee sense of the word, has very good and very bad sides. Among the latter is

its tendency to create the belief that we need not prepare for war, because somehow we shall be able to win by some novel patent device, some new trick or new invention developed on the spur of the moment by the ingenuity of our people. In this way it is hoped to provide a substitute for preparedness—that is, for years of patient and faithful attention to detail in advance. It is even sometimes said that these mechanical devices will be of so terrible a character as to nullify the courage which has always in the past been the prime factor in winning battles.

Now, as all sound military judges knew in advance must inevitably be the case, the experience of the Spanish war completely falsified every prediction of this kind. We did not win through any special ingenuity. Not a device of any kind was improvised during or immediately before the war which was of any practical service. The "bombs enveloped in petroleum" had no existence save in the brains of the Spaniards and their more credulous sympathizers. Our navy won because of its preparedness and because of the splendid seamanship and gunnery which had been handed down as traditional in the service, and had been perfected by the most careful work. The army, at the only point where it was seriously opposed, did its work by sheer dogged courage and hard fighting, in spite of an unpreparedness, which almost brought disaster upon it, and would without doubt actually have done so had not the defects and shortcomings of the Spanish administration been even greater than our own.

We won the war in a very short time, and without having to expend more than the merest fraction of our strength. The navy was shown to be in good shape; and Secretary Root, to whom the wisdom of President KcKinley has intrusted the War Department, has already shown himself as good a man as ever held the portfolio—a man whose administration is certainly to be of inestimable service to the army and to the country. In consequence, too many of our people show signs of thinking that, after all, everything was all right, and is all right now, that we need not bother ourselves to learn any lessons that are not agreeable to us, and that if in the future we get into a war with a more formidable power than Spain, we shall pull

through somehow. Such a view is unjust to the splendid men of the army and of the navy, who would be sacrificed to it, should we ever engage in a serious war without having learned the lessons that the year 1898 ought to have taught.

If we wish to get an explanation of the efficiency of our navy in 1898 and of the astonishing ease with which its victories were won, we must go a long way back of that year, and study not only its history, but the history of the Spanish navy for many decades. Of course any such study must begin with a prompt admission of the splendid natural quality of our officers and men. On the bridge, in the gun-turrets, in the engine-room, and behind the quick-firers, every one alike, from the highest to the lowest, was eager for the war, and was, in heart, mind, and body, of the very type which makes the best kind of fighting man.

Many of the officers of our ships have mentioned to me that during the war punishments almost ceased, because the men who got into scrapes in times of peace were so aroused and excited by the chance of battle that their behavior was perfect. We read now and then of foreign services where men hate their officers, have no community of interest with them, and no desire to fight for the flag. Most emphatically such is not the case in our service. The discipline is just but not severe, unless severity is imperatively called for. As a whole, the officers have the welfare of the men very much at heart, and take care of their bodies with the same forethought that they show in training them for battle. The physique of the men is excellent, and to it is joined eagerness to learn, and readiness to take risks and to stand danger unmoved.

Nevertheless, all this, though indispensable as a base, would mean nothing whatever for the efficiency of the navy without years of careful preparation and training. A war-ship is such a complicated machine, and such highly specialized training is self-evidently needed to command it, that our naval commanders, unlike our military commanders, are freed from having to combat the exasperating belief that the average civilian could at short notice do their work. Of course, in reality a special order of ability and special training are needed to enable a man to command troops successfully; but the need is not so obvious

as on shipboard. No civilian could be five minutes on a battleship without realizing his unfitness to command it; but there are any number of civilians who firmly believe they can command regiments, when they have not a single trait, natural or acquired, that really fits them for the task. A blunder in the one case meets with instant, open, and terrible punishment; in the other, it is at the moment only a source of laughter or exasperation to the few, ominous though it may be for the future. A colonel who issued the wrong order would cause confusion. A ship captain by such an order might wreck his ship. It follows that the navy is comparatively free in time of war from the presence in the higher ranks of men utterly unfit to perform their duties. The nation realizes that it cannot improvise naval officers even out of first-rate skippers of merchantmen and passenger steamers. Such men could be used to a certain extent as under-officers to meet a sudden and great emergency; but at best they would meet it imperfectly, and this the public at large understands.

There is, however, some failure to understand that much the same condition prevails among ordinary seamen. The public speakers and newspaper writers who may be loudest in clamoring for war are often precisely the men who clamor against preparations for war. Whether from sheer ignorance or from demagogy, they frequently assert that, as this is the day of mechanics, even on the sea, and as we have a large mechanical population, we could at once fit out any number of vessels with men who would from the first do their duty thoroughly and well.

As a matter of fact, though the sea mechanic has replaced the sailorman, yet it is almost as necessary as ever that a man should have the sea habit in order to be of use aboard ship; and it is infinitely more necessary than in former times that a man-of-war's man should have especial training with his guns before he can use them aright. In the old days cannon were very simple; sighting was done roughly; and the ordinary merchant seaman speedily grew fit to do his share of work on a frigate. Nowadays men must be carefully trained for a considerable space of time before they can be of any assistance whatever in handling and getting good results from the formidable

engines of destruction on battle-ship, cruiser, and torpedo boat. Crews cannot be improvised. To get the very best work out of them, they should all be composed of trained and seasoned men; and in any event they should not be sent against a formidable adversary unless each crew has for a nucleus a large body of such men filling all the important positions. From time immemorial it has proved impossible to improvise so much as a makeshift navy for use against a formidable naval opponent. Any such effort must meet with disaster.

Most fortunately, the United States had grown to realize this some time before the Spanish war broke out. After the gigantic Civil War the reaction from the strain of the contest was such that our navy was permitted to go to pieces. Fifteen years after the close of the contest in which Farragut took rank as one of the great admirals of all time, the splendid navy of which he was the chief ornament had become an object of derision to every third-rate power in Europe and South America. The elderly monitors and wooden steamers, with their old-fashioned smooth-bore guns, would have been as incompetent to face the modern ships of the period as the *Congress* and the *Cumberland* were to face the *Merrimac*. Our men were as brave as ever, but in war their courage would have been of no more avail than the splendid valor of the men who sank with their guns firing and flags flying when the great Confederate ironclad came out to Hampton Roads.

At last the nation awoke from its lethargy. In 1883, under the administration of President Arthur, when Secretary Chandler was in the Navy Department, the work was begun. The first step taken was the refusal to repair the more antiquated wooden ships, and the building of new steel ships to replace them. One of the ships thus laid down was the *Boston*, which was in Dewey's fleet. It is therefore merely the literal truth to say that the preparations which made Dewey's victory possible began just fifteen years before the famous day when he steamed into Manila Bay. Every Senator and Congressman who voted an appropriation which enabled Secretary Chandler to begin the upbuilding of the new navy, the President who advised the course, the Secretary who had the direct management of it, the shipbuilder in whose yard the ship was constructed, the skilled

experts who planned her hull, engine, and guns, and the skilled workmen who worked out these plans, all alike are entitled to their share in the credit of the great Manila victory.

The majority of the men can never be known by name but the fact that they did well their part in the deed is of vastly more importance than the obtaining of any reward for it, whether by way of recognition or otherwise; and this fact will always remain. Nevertheless, it is important for our own future that, so far as possible, we should recognize the men who did well. This is peculiarly important in the case of Congress, whose action has been the indispensable prerequisite for every effort to build up the navy, as Congress provided the means for each step.

As there was always a division in Congress, while in the popular mind the whole body is apt to be held accountable for any deed, good or ill, done by the majority, it is much to be wished, in the interest of justice, that some special historian of the navy would take out from the records the votes, and here and there the speeches, for and against the successive measures by which the navy was built up. Every man who by vote and voice from time to time took part in adding to our fleet, in buying the armor, in preparing the gun-factories, in increasing the personnel and enabling it to practice, deserves well of the whole nation, and a record of his action should be kept, that his children may feel proud of him. No less clearly should we understand that throughout these fifteen years the men who, whether from honest but misguided motives, from short-sightedness, from lack of patriotism, or from demagogy, opposed the building up of the navy, have deserved ill of the nation, exactly as did those men who recently prevented the purchase of armor for the battleships, or, under the lead of Senator Gorman, prevented establishment of our army on the footing necessary for our national needs. If disaster comes through lack of preparedness, the fault necessarily lies far less with the men under whom the disaster actually occurs than those to whose wrong-headedness or short-sighted indifference in time past the lack of preparedness is due.

The mistakes, the blunders, and the shortcomings in the army management during the summer of 1898 should be

credited mainly not to any one in office in 1898, but to the public servants of the people, and therefore to the people themselves, who permitted the army to rust since the Civil War with a wholly faulty administration, and with no chance whatever to perfect itself by practice, as the navy was perfected. In like manner, any trouble that may come upon the army, and therefore upon the nation, in the next few years, will be due to the failure to provide for a thoroughly reorganized Regular army of adequate size last year; and for this failure the members in the Senate and the House who took the lead against increasing the Regular army, and reorganizing it, will be primarily responsible. On them will rest the blame of any check to the national arms, and the honor that will undoubtedly be won for the flag by our army will have been won in spite of their sinister opposition.

In May, 1898, when our battle-ships were lying off Havana and the Spanish torpedo-boat destroyers were crossing the ocean, our best commanders felt justifiable anxiety because we had no destroyers to guard our fleet against the Spanish destroyers. Thanks to the blunders and lack of initiative of the Spaniards, they made no good use whatever of their formidable boats, sending them against our ships in daylight, when it was hopeless to expect anything from them.

But in war it is unsafe to trust to the blunders of the adversary to offset our own blunders. Many a naval officer, when with improvised craft of small real worth they were trying to guard our battle-ships against the terrible possibilities of an attack by torpedo-boat destroyers in the darkness, must have thought with bitterness how a year before, when Senator Lodge and those who thought like him were striving to secure an adequate support of large, high class torpedo-boats, the majority of the Senate followed the lead of Senator Gorman in opposition. So in the future, if what we all most earnestly hope will not happen does happen, and we are engaged in war with some formidable sea power, any failure of our arms resulting from an inadequate number of battle-ships, or imperfectly prepared battle-ships, will have to be credited to those members of Congress who opposed increasing the number of ships, or opposed giving them proper armament, for no matter what reason. On

the other hand, the national consciousness of capacity to vindicate national honor must be due mainly to the action of those Congressmen who have in fact built up our fleet.

Secretary Chandler was succeeded by a line of men, each of whom, however he might differ from the others politically and personally, sincerely desired and strove hard for the upbuilding of the navy. Under Messrs. Whitney, Tracy, Herbert, and Long the work has gone steadily forward, thanks of course, to the fact that successive Congresses, Democratic and Republican alike, have permitted it to go forward.

But the appropriation of money and the building of ships were not enough. We must keep steadily in mind that not only was it necessary to build the navy, but it was equally necessary to train our officers and men aboard it by actual practice. If in 1883 we had been able suddenly to purchase our present battle-ships, they could not have been handled with any degree of efficiency by our officers and crews as they then were. Still less would it be possible to handle them by improvised crews. In an emergency bodies of men like our naval militia can do special bits of work excellently, and, thanks to their high average of character and intellect, they are remarkably good makeshifts, but it would be folly to expect from them all that is expected from a veteran crew of trained man-of-war's men. And if we are ever pitted ship for ship on equal terms against the first-class navy of a first-class power, we shall need our best captains and our best crews if we are to win.

As fast as the new navy was built we had to break in the men to handle it. The young officers who first took hold and developed the possibilities of our torpedo-boats, for instance, really deserve as much credit as their successors have rightly received for handling them with dash and skill during the war. The admirals who first exercised the new ships in squadrons were giving the training without which Dewey and Sampson would have found their tasks incomparably more difficult. As for the ordinary officers and seamen, of course it was their incessant practice in handling the ships and the guns at sea, in all kinds of weather, both alone and in company, year in and year out, that made them able to keep up the never relaxing night blockade at Santiago, to steam into Manila Bay in the darkness,

to prevent breakdowns and make repairs of the machinery, and finally to hit what they aimed at when the battle was on. In the naval bureaus the great bulk of what in the army would be called staff places are held by line officers. The men who made ready the guns were the same men who afterward used them. In the engineering bureau were the men who had handled or were to handle the engines in action. The bureau of navigation, the bureau of equipment, the bureau of information, were held by men who had commanded ships in actual service, or who were thus to command them against the Spaniards. The head of the bureau of navigation is the chief of staff, and he has always been an officer of distinction, detailed, like all of the other bureau chiefs, for special service. From the highest to the lowest officer, every naval man had seen and taken part, during time of peace, in the work which he would have to do in time of war. The commodores and captains who took active part had commanded fleets in sea service, or at the least had been in command of single ships in these fleets. There was not one thing they were to do in war which they had not done in peace, save actually receive the enemy's fire.

Contrast this with the army. The material in the army is exactly as good as that in the navy, and in the lower ranks the excellence is as great. In no service, ashore or afloat, in the world could better men of their grade be found than the lieutenants, and indeed the captains, of the infantry and dismounted cavalry at Santiago. But in the army the staff bureaus are permanent positions, instead of being held, as of course they should be, by officers detailed from the line, with the needs of the line and experiences of actual service fresh in their minds.

The artillery had for thirty-five years had no field practice that was in the slightest degree adequate to its needs, or that compared in any way with the practice received by the different companies and troops of the infantry and cavalry. The bureaus in Washington were absolutely enmeshed in red tape, and were held for the most part by elderly men, of fine records in the past, who were no longer fit to break through routine and to show the extraordinary energy, business capacity, initiative, and willingness to accept responsibility which were needed. Finally, the higher officers had been absolutely denied that chance to

practice their profession to which the higher officers of the navy had long been accustomed. Every time a war-ship goes to sea and cruises around the world, its captain has just such an experience as the colonel of a regiment would have if sent off for six or eight months' march, and if during those six or eight months he incessantly practised his regiment in every item of duty which it would have to perform in battle. Every war-ship in the American navy, and not a single regiment in the American army, had had this experience.

Every naval captain had exercised command for long periods, under conditions which made up nine-tenths of what he would have to encounter in war. Hardly a colonel had such an experience to his credit. The regiments were not even assembled, but were scattered by companies here and there. After a man ceased being a junior captain he usually had hardly any chance for field service; it was the lieutenants and junior captains who did most of the field work in the West of recent years. Of course there were exceptions; even at Santiago there were generals and colonels who showed themselves not only good fighters but masters of their profession; and in the Philippines the war has developed admirable leaders, so that now we have ready the right man; but the general rule remains true. The best man alive, if allowed to rust at a three-company post, or in a garrison near some big city, for ten or fifteen years, will find himself in straits if suddenly called to command a division, or mayhap even an army-corps, on a foreign expedition, especially when not one of his important subordinates has ever so much as seen five thousand troops gathered, fed, sheltered, manœuvred, and shipped. The marvel is, not that there was blundering, but that there was so little, in the late war with Spain.

Captain (now Colonel) John Bigelow, Jr., in his account of his personal experiences in command of a troop of cavalry during the Santiago campaign, has pictured the welter of confusion during that campaign, and the utter lack of organization, and of that skilled leadership which can come only through practice. His book should be studied by every man who wishes to see our army made what it should be. In the Santiago campaign the army was more than once uncomfortably near grave

disaster, from which it was saved by the remarkable fighting qualities of its individual fractions, and, above all, by the incompetency of its foes. To go against a well-organized, well-handled, well-led foreign foe under such conditions would inevitably have meant failure and humiliation. Of course, party demagogues and the thoughtless generally are sure to credit these disasters to the people under whom they occur, to the secretary, or to the commander of the army.

As a matter of fact, the blame must rest in all such cases far less with them than with those responsible for the existence of the system. Even if we had the best Secretary of War the country could supply and the best general the army could furnish, it would be impossible for them off-hand to get good results if the nation, through its representatives, had failed to make adequate provision for a proper army, and to provide for the reorganization of the army and for its practice in time of peace. The whole staff system, and much else, should be remodeled. Above all, the army should be practiced in mass in the actual work of marching and camping. Only thus will it be possible to train the commanders, the quartermasters, the commissaries, the doctors, so that they may by actual experience learn to do their duties, as naval officers by actual experience have learned to do theirs. Only thus can we do full justice to as splendid and gallant a body of men as any nation ever had the good luck to include among its armed defenders.

THE BRITISH SOLDIER.

By LINESMAN.

(From the United Service Magazine, London.)

WE have no airy fairy individual to deal with here—such as "The Soldier of Fiction," whom Mr. Horace Wyndham so playfully brought to our recollection, twelve months ago, in the *United Service Magazine*—but the Soldier of Fact, described by the same author in "The Queen's Service." We are to consider a man, not a mountebank, an active unit of the most mighty collection of stubborn forceful entities that this weary old world has ever had to carry, the

proletariat of England, her commonfolk and commonwealth. We may, I think, fairly hold him as a type, and considering the various sources which supply him, a strangely consistent one, of his class and countrymen.

The army of to-day is a great focussing glass, which brings a thousand different characteristics into the analyst's field of vision, presenting them clear and determined to his otherwise bewildered eye, in the person of the soldier. Trades, employments, professions of all sorts contribute their quota; superfluous people, and many who are not superfluous, hop out of grooves which lead in widely different directions, and pursue their way, changed, but still distinguishable, down the great military groove which leads they know not whither. Yet, though they lose not their individuality, it is amazing how similar their individualities are, how identical is the texture, not the form, of the products of different and sometimes diametrically opposite processes.

Herein, we believe, lies the strength and cohesion of our nation, the energy and weight which has carried it, by which it has forced itself wherever it listed. For the texture is no shoddy, as we propose to show, but sound sterling stuff, a little weather-beaten perhaps by the stern old element Time, but showing no sign of disintegration, whatever the croakers may say. But it is not as a type of his countrymen that we are about to consider our friend the soldier of to-day. The great vague millions that move behind him, from whence he emerged, are altogether too mighty a theme for our pen, or for the matter of that for any pen. The colossal eye that can "survey mankind from China to Peru," has not yet opened on the earth, and an organ of less scope were useless for a comprehensive survey of the English people. We can only attempt to take him as a type of himself, to point out a few of his many remarkable features as they appear to us.

Maybe our very declaration of the similarity of his character as a soldier with that of his fellows is but a confession of blindness. We do not claim any special acuteness of vision, but we claim to have looked where many do not look, to have speculated on what many take for granted; we will disarm criticism at once by declaring that our prying and speculation have led to but

one result, appreciation, and who can cavil at a charge which forces such a verdict on the accuser himself?

The first thing that merges the soldier into the great interests of the service is naturally the act of enlistment. The army is no analyst, she is too busy a body, too prudent and practical a housewife to inquire into the causes that urge that stream of men which flows so spasmodically, but so constantly through her portals, sometimes in full volume, sometimes in a driblet; it is sufficient for her that they do come, and her curiosity and interest are reserved for the numbers in which they present themselves. "Sign your name," she says, "in my great visitor's book, and henceforward you are under my care. Whence you came I care not, whither you shall go, and how you shall fare, my pigeonholes and paragraphs shall instruct you." Here we manifestly have the advantage of the army, the advantage the idle always possess over the *gens affairés* of the world, the unproductive advantage of priority of interest in causes over effects. To us, as an inquirer, the reasons that have driven or induced men to enlist are of more importance than the fact or the frequency of enlistment. That fine youth who advances so boldly, gazing straight to his front, already more than half a soldier, does he see the red hand of glory beckoning to him from within the gateway? And yonder crouching wretch, hurrying and sidling in, ever and anon turning fearful glances back into the gloom, is he being kicked over the threshold by the heavy boot of misfortune? Who can tell? Maybe the incitements are exactly reversed. Men are so curiously fashioned by nature, that the demeanor of even the most witless of them often gives the lie to Truth herself. But the causes that lead a man to become a soldier are of the utmost importance in our study of the soldier himself. We are reduced to a "table," it is the only literary artifice that we have learnt from our great instructress the army, and one greatly beloved by her, since it is a corrective to diffuseness and conducive to the attainment of facts. Facts are her chief pabulum, and as we are considering the soldier of fact, we cannot do better than apply her somewhat unlovely method.

We believe, then, that the following five causes are responsible for the bulk of enlistments in the army; others there may

be, for men act at times on impulses that no ordinary classification could embrace without becoming lurid, or "tabulatorily" inartistic. They are as follows:

(1) Betterment of condition, *i. e.*, attainment of work and food in lieu of precarious or entirely absent ditto. (Common.)

(2) Desire of Glory. (Rare.)

(3) Attraction offered by handsome clothes, and consequent admiration and increase of importance amongst companions. (Common, much more so than clothing committees have any notion of.)

(4) To escape from consequences of crime, or from quarrels at home, or from uncongenial work. (Fairly common in towns, less so in agricultural districts.)

(5) From genuine love of a soldier's life and work, and desire to adopt it as a profession. (Rare.)

The first and third of the reasons given above we believe to supply more recruits than the other three put together, and the first, alas! a somewhat sad one, more than the third. Unskilled labor must ever preponderate in this or any other land, in spite of Board Schools, Technical Schools and the like, and the lot of unskilled labor is a hard one. There are not always coulters waiting for a hand to guide them through the brown earth, or fat cheerful teams standing ready in the miller's wagon, to be driven with cracking thong, and noise, that wakes the morning along the country lanes. There is not everywhere wood to be sawn, or coal carried, or droves of cattle to be hustled and blasphemed along the dusty roads, and if there were, God wot! it is weary work, and no El Dorado either. So in we go, through the barrack gate, past the smart sergeant on gate duty, past the clean, well-fed sentry, who we can see looks over his rifle-barrel with ill-concealed superiority at our rags and grime, past many happy-looking men, some of whom we knew before, and, fools that we were, gibed at on hearing of their martial venture. We are of them now, and they who marvel at our choice should learn what all that was which led us to make it.

It is a relief to turn to the other influence to which we have attributed great power in drawing young men to the ranks, the attractions of kit and accoutrements. We move at once into a gay and delightful atmosphere, a region of braid, buttons,

badges, and all the trifles which are dear to the soldier's heart —how dear few people seem to know, and even amongst the few the groping form of Authority is not numbered. It is inconceivable how blind are the rulers of Pimlico to the unlimited and inexpensive means of obtaining recruits offered by a little deft manipulation of the miles of scarlet cloth and white piping, the tons of brass buttons over which they preside. I speak more particularly of the infantry soldier in this respect. It is well known that the cavalry have no difficulty in filling their ranks, and with what splendid stuff a visit to any cavalry station will demonstrate. It cannot be because of the more attractive work ; the duties of a cavalry trooper being perhaps about four times as arduous as those of his brother of the line. It is, we assert, if assertion is necessary, simply and solely because of the tasteful and splendid garments in which he can array himself when the drudgery of stables and cleaning up is over, in which he can march to church to worship his God, or into the High Street to gladden the eyes of his sweetheart. He looks a man, every inch of him, and he knows it. Whether he be decorated with the golden filagree of the Hussar, the red-breasted glory of the Lancer, or the yellow-ribbed splendor of the horse artilleryman, he strides along proud of himself and his service, and commiserative of the ill-cut scarlet sack of the linesman, albeit clothing limbs as strong and shapely as his own. Yet we hear with sorrow that the chief of his treasures is to be taken from him, the stable jacket, which showed a man's chest if he had one, and made him drill and hold himself like the lance at his stirrup iron, in order to acquire one, if he had it not. Let us hope that the rumor is untrue, and that our handsome friend the trooper has no need to say with Wordsworth :

> "And yet I know, where'er I go,
> That there hath passed away a glory from the earth."

Inducements Nos. 2 and 5 we have been compelled to mark as "Rare," but we do not thereby plead guilty to cold-blooded cynicism. A cynic, we suggest, is one who, expecting too much from human nature, is grieved and offended because he does not find it come up to the flattering description he has written of it in the catalogue of his mind. We have found it more soothing to adopt a system exactly the converse of this, to start with no

anticipation of loftiness of aim in human actions, rather to set them at their most ignoble level; from thence we rise on each revelation of superior purpose to a higher and higher opinion of mankind. We must confess that we yet await development of this process of elevation in the cases under consideration, heroic 2, ennobled 5! The prospective soldier of fact hears the highly colored tales of the recruiting sergeant with no responsive emotion; no scenes of glory dance before his steady eye, no romance buzzes impractically through his well-balanced brain. He is essentially of fact, and doubtless the panorama he expects to see roll past him, if defined at all beforehand, is all the more attractive and confidence giving because it lacks these lurid accessories. Yet, if the gods will, he will achieve glory, he will make romance, splendid glory, and romance which puts romance to shame! He will also learn to love the soldier's life, and thus three bright lamps may illumine his career which he had no thought of putting match to at the outset. And when they are in full glow he will walk in their light with no indecent excitement. He will comport himself as coolly and with as level a head as in the days of his early obscurity. This is one of the most extraordinary and admirable traits in his character. We have conversed with men who have "glared at Death," with men who have done more, who have sparred with Death with bare fists and come scathless out of the ring; but no suspicion of that dreadful gaze lurked in their eyes, and the hand that smote the smiter rested calm and correct against the "seam of the trousers." Those wild events were but an incident, the soldier of fact regards them almost with surprise, and turns from them to pursue the even tenor of his way through what he considers his real life, the routine of duties and promotion.

Inducement No. 4 we can say little about. Information on the causes mentioned therein is naturally not forthcoming, and we confess our observation on them to be almost purely conjectural. A few cases of each we have known, and remarks from owners of mills and factories, letters from parents after the scion of the house has taken what his relations still consider the fatal step, seem to bear out our surmises. Alas, too, the occasional appearance of a policeman, blue-clad, ominous, and evidently ill at ease in the neighborhood of the orderly room, verifies the last

of the causes assigned under this heading. The days when the evil-doer could take sanctuary in the Service are past; the long fingers of the law will pluck him unerringly from the thousands in which he seeks to hide, to hale him back into the darkness, and maybe from hopefulness back into despair. It is unfortunate, and we have often wished that Justice could keep those blind eyes of hers still more tightly shut at times; but there is much to be said on the other side, and we are thankful to say she does not glean very many ears for her sorry crop from the ranks.

In tracing the causes that lead to the creation of the soldier of fact, we have touched upon many traits which remain with him in his new character, and therefore our investigation was not irrelevant. But he has many aspects. The nation regards him from one point of view, the estimates from another, the political economist with disapproving eye from a third (for he is no producer, is our soldier, and waste is his mission rather than wage-earning). Our standpoint is different again; it is our business and pleasure to observe his deportment in his daily duty in the ranks, in his amusements, in his joys and sorrows, in health and sickness, in every circumstance of his career that is visible to the eye of a comrade, and there are few that are not. The recruiting placards make no mention of privacy amongst the prospective comforts of the soldier, but we do not believe that he misses or desires it. He is gregarious perforce and by inclination, as are the majority of his equals in any walk of life, despite his countrymen's boasted isolation and reticence. These latter we imagine are the luxuries of the well-to-do, or the unhappy, and our soldier is neither.

Were we asked to describe in as few words as possible his general demeanor when on duty, we would say that it is contained in the expression, an intelligent phlegm. "Damn with faint praise," we hear some one say, but a little consideration will clear us of this charge. Phlegm without intelligence is idiotic, intelligence without the counterpoise of phlegm is often undignified, especially in men of small education; but the conjunction of the two results in one opinion, in a temperament perfect for military purposes, and not unacceptable in any society of men. We see it again, in a less natural form, in the *nil*

admirari of the upper classes, a bearing not without merits and advantages to its possessor, but which is an instance of a sound native quality somewhat spoilt by promotion. To the *nil admirari* man abstention from superlatives is a profession, to the soldier it is an instinct, a normal condition. There is no class of men who comment less upon events interesting to them professionally, we mean more particularly events that are forced upon their notice, such as orders affecting their welfare, their movements, their dress, or the very conditions of their service. It is this that makes a difficulty that even officers who are in daily contact with the men, must confess they have experienced, the difficulty of getting to know their real opinion or desire on any subject. No amount of popularity or confidence seems to break down this barrier of reserve, and the inquiring officer more often than not comes away with the unsatisfactory feeling that he has but elicited what, for want of a better word, we must call a time-serving answer to his queries. That this is a real obstacle few who know anything about men and their ways will deny.

It is perfectly plain that Tommy silently criticises his affairs, and the world's treatment of them; the intelligent side of his phlegm gives him full capacity in this direction, and too often his criticisms, based as they are on insufficient knowledge, are obviously unfair, and leave him the discontented possessor of entirely imaginary grievances. In a previous article, we have charged this to the effect of the pretentious and disturbing education which mistaken governments force upon him. Education is a dangerous weapon to forge, and one that requires the greatest care in the welding. Haste is fatal to its manufacture, and in our humble opinion the system of to-day attempts to hurry a dozen subjects through the moulds of men's brains, in the time in which but one can be truly shaped and perfected. The result will be a nation of cynics, with just enough learning to discover things to suspect in one another, and not sufficient to pass from suspicion to trust; for we believe that faith in human nature is arrived at from the two poles equally, from absolute ignorance as from the perfection of knowledge, so that at least cynicism cannot be alleged against us.

Even in his amusements, in his games, the soldier evinces

the same defect of judgment. It is his fixed idea that the world is in league to "best" him somehow or other, and an umpire or referee who would officiate in a regimental cricket or football match, must bring with him much pachydermatous resolution to withstand the arrows of dissent that will surely be launched at him in clouds. In truth the soldier is but a poor hand at a game, we believe that he rarely enjoys it, whether playing himself or as a spectator. The points that appeal to him, that cause his great voice to be uplifted in a mighty roar of triumph, are seldom those that commend themselves to those who appreciate the beauties ef the game in progress. A bit of sharp practice, of barely legal evasions of the rules, will draw his stentorian approval more surely than Palairets' most academic "late cut," or Stoddarts' swiftest rush.

Again, as a general rule (to which there are of course exceptions) our soldier is no sportsman. Kill fish or fowl he will, if chance offers, but he has no appreciation of skill or fairness in outwitting his quarry, of bringing it to hand artistically. A holocaust is more to his taste than the legitimate, and to his eyes foolishly retail slaughter imposed by the canons of sport. Scenery, the frame without which the picture is incomplete to the sportsman, he rarely notices; excitement and uncertainty, the very life of the game to its devotees, leave him unmoved. An instance occurs to us in this connection:

X——, a brother officer, an enthusiastic fisherman, was in the habit of taking his soldier-servant with him on his angling excursions, to carry his landing net, lunch, etc., and used to boast that the man glowed with the *ignis sacer*, the fisher's keenness that fired his master. We were somewhat envious of his possession, as our own servant, who had accompanied us to the river on several occasions, was obviously a martyr to extreme boredom, even though trout were pulled out in dozens under his very eyes, and he adopted a demeanor so damping, that we had finally dispensed with his society. One day X——, casting his trout flies into the dark blue depths of a pool, rose and hooked a lordly salmon. Great was the excitement; how our hearts stood still at every sounding plunge of the indignant monarch! Would the tiny hook hold, that gossamer gut, could it possibly sustain the angry snatches of that two feet of nervous silver?

But proud *salar* had been known to have yielded up his life before to such disproportionate tackle, and X—— meant to have him if possible. Even during the intense anxiety of the long struggle that followed, he found time to call my attention to the rapture displayed by his familiar. A glance towards the latter certainly seemed to bear out his master's encomium; the man seemed possessed! Leaping from rock to rock, brandishing the long net, his excitement appeared to have completely banished the instructions of masterly inactivity which had been so often inculcated by his superior as proper to the wielder of the net, the consummator of the rodsman's skill.

At last, *horribile dictu!* the long enduring tension of the gut gave way, and with a Parthian flap of his mighty tail, the great fish rolled over and disappeared for ever below the surface of the pool. None but fishermen will know the moment of blank despair that followed; but our silent misery was immediately broken into by a volley of curses from X's servant, a fact which seemed to comfort X. "See how disappointed the poor fellow is," quoth he, "it almost consoles one to find such true sympathy, albeit couched somewhat noisily in the dialect of Billingsgate." Unfortunately for his peace of mind it occurred to me to ask the man what it was that so distressed him. The answer was a shock to X—, greater we believe than the one from which we staggered still. *The fellow had got his feet wet!* All through that Homeric combat his object had been to keep his unworthy extremities out of the water; his leapings, his supposed excitement had been to this end alone, and his loud annoyance had been elicited only by the fact that he had at last gone in over his ankles.

But the soldier has his amusements, and he is peculiarly blest that he more often than not finds them in the daily exercise and routine of his profession. There are few professions of which their members can say as much. He has a keen appreciation of good drill, for instance, and feels all the gratification of a *dilettante* at a smart "shoulder-arms," which snaps out from a long line like the crack of a whip, or the rhythmic wheel of a strong battalion in quarter-column, moving round, a deep red parallelogram, steadily and accurately into a new position. These are things he knows about, of which he feels the sig-

nificance, and who shall say that his pleasure in them is not as great as that of the angler or the hunting-man in the beauties of their own absorbing pursuits? Yet, there is not in his nature an idiosyncrasy more inexplicable than the wide difference of his performances on the parade ground from day to day. It is the despair of adjutants and drill instructors, and we veritably believe an enigma to himself. The very battalion that to-day challenges the Guards themselves to look to their laurels for steadiness and precision, will to-morrow, under the same officers and conditions, give an exposition that reduces the supernumerary rank to tears and brings wrath to the indignant lips of the colonel. Nor is it done of malice prepense; the pained and worried astonishment that pervades the ranks on one of the "off" mornings, when it appears a physical impossibility to preserve distances, and to gain that crystallization of discipline, the "dressing," is witness enough of the genuineness of the men's regret.

The truth is that no amount of drill can turn our friend the soldier into a machine, warranted to work automatically from Monday to Saturday. He is a being far more susceptible to outside influences than would be inferred from the stolidity of his bearing. The same mysterious and illogical causes that act on us all individually, raising us to the gods for the pure joy of living one day, and flinging us down to the depth of nervous incompetence the next, operate equally on us when gathered together in crowds. The emotions that pass over a number of human beings, whether it be a mob in the streets, or the orderly hundreds of a battalion, are felt as sensibly by each unit of the gathering as his own private joys or worries.

We think that the importance of drill is grievously ignored in these days. In our opinion it is the natural process for turning out the finished article, and its neglect is responsible for the large number of unmade soldiers who are visible in the ranks to-day, of men who have had to jerry-build their knowledge of their profession without the foundation of steadiness, smartness and obedience on the barrack-square. Amongst the men themselves it is the touchstone of competence, and they will give their confidence to an officer or non-commissioned officer known to be a smart drill, which they deny to the most

correct of interior economists or accountants. It is almost their only means of judging the efficiency of their officers, and a man unjudged is a man distrusted. Of his accounts they know nothing, chaos might reign in them for all they hear or care; his private life is hidden from them, but on parade he stands and speaks before them, and according to his bearing there, and the purport of his speaking, will he be valued. Thomas Atkins is a stern and unmerciful critic of his superiors, for his verdict is based on a stern standard of criticism, the standard of war; what would happen on active service, how an order, a decision, a plan will fare, when a real enemy will lie waiting to blast it or to be blasted by it as its worth contains. We have not seen him in war, but we see him constantly in the preparatory path of peace, along which he walks as if certain that at the end of it lies a struggle, with whom he knows not, but he is sure that it will be titanic, and he is exceedingly intolerant of any defects which in his opinion will prejudice the result.

From hearsay we learn that his demeanor on active service is incredibly like that which marks him in quarters at home. The phlegm is there, the intelligence remains, but in addition he seems possessed by a continual wonder at the change in his condition, and as is his wont, adapts himself but slowly to it. As before remarked, he seems to regard the wonderful scenes and events through which warfare leads him, as merely disturbing elements in his otherwise orderly life, and on his return to quarters, will put aside the glory he has won, the tremendous sights and sounds he has experienced, to take up again the broken thread of routine, his real life and interest. And how that life stamps him forever a man apart amongst his civilian equals! Once a soldier, always a soldier; the few years that the state claims from out his life are themselves a lifetime, and tinge all the rest with their scarlet and the ineradicable trade-mark, the broad arrow. Though only one short lap in the race he runs on earth, it is a part he can never forget, the part that rises before him in his wanderings, in his cups, in his prayers, with a never-ceasing regret for happy days gone by. Enlistment Acts may shorten as they will his period of service, in the hope that he will fold the Queen's livery decently away at the end of his time, and resume the useful monotony of his laborer's

work. How vain the hope, alas! how often is the ensuing monotony useless and harmful. Fibres strengthened by discipline relax at a piteous rate under enforced idleness and unsought liberty. Of course, this unhappy state of things has many exceptions, and solutions are being found for the great problem of employment of discharged soldiers. But with this after-state of the soldier we have nothing to do at present. Our task was to sketch him at his trade, and we must end it, though it is far from complete. He is worthy of more than a sketch, and it is a pity that some master does not set his hand to work on a finished picture; we can assure any such that a more interesting sitter will not present himself in the whole range of human kind, than the sturdy form of the soldier of fact.

IS WAR ALLOWABLE?

By the Rev. PHILIP YOUNG, late Dean of Nassau.

(*From the United Service Magazine.*)

A STRANGE question this to propound in a magazine devoted to the interests of the two great services. It is, however, a grave subject in ethics and one which, at such a time as this, might well be studied with advantage. It may be that in the flush of a freshly stirred patriotism when the moral sense of the nation has been outraged, when its patience has been strained to breaking-point and the cry has gone forth "To arms," that such a question as the permissibility of war, never presses for an answer. But out upon the battle-field, when the cannon's roar is hushed, when sword is sheathed and the lance rests idly at the charger's side; when the fever has abated and the carnage can to some extent be gauged—then start other thoughts and strange questionings. Hate has died out. There comes the inevitable reaction, while hearts go forth in kindlier mood and officers and men alike feel that whether allowable or not, war is at least a horrid necessity.

And we who remain at home, who have no personal call to take up arms, feel as the soldier and the sailor feel; for do we not catch the fervor of patriotism; do we not follow with deathless interest the tidings from the field of battle?

The little army of war correspondents—ever to the front if it may be so—sends home its life-like sketches, drawn hurriedly yet skilfully withal; but those sketches tell not half the tale of woe. Imagination tries to fill in the details or refuses detail altogether. Everything is so terrible—and this is war! We can understand why the Russian military authorities refuse to soldiers entrance to the Verestchagin gallery of pictures; for is not Verestchagin the most realistic painter of battle scenes? And would not the sight of such gruesome war scenes sicken the soldier and take out the bravery from his heart?

And so we ask, compassionately, sorrowfully, hoping for a negative reply, "Is war ever justifiable?"

There must be a true answer to every question. Let us see if we can find it here.

No one who thinks can deny that war is barbarism. With Christian peoples, professing to follow the holy, peaceful precepts of Christianity, it should be forever an impossible thing. It is the failure—on one side or other, sometimes on both—to apply these principles, which makes for barbarism in the nineteenth century, and, so long as nations are what they are, so little imbued with the unselfishness which Christianity inculcates, not less for the race than for the individual, so long will war be possible, yea, inevitable.

Then, you deny the permissibility, though you admit the fact of war! No, we do not say that. It is a barbarism, but it may be, and often is, a justifiable barbarism.

We have to do with nations as they are, not as we could wish them to be; and it is easy to find illustrations of the position we assume.

We have our own wonderful empire. It is obvious that what has been built up with the tremendous energy and foresight of our forefathers, which has become ours—not from selfish greed, as our enemies never tire of telling us, but through some mysterious, progressive, expansive and civilizing law within us—it is obvious that it is ours to improve, to establish firmly and to hand down intact to others. But suppose the case of another nation, jealous of our growth and ubiquity, seeking to rob us of our inheritance and of our acquired rights, could war be averted?

Having empire must we not maintain empire and that against all comers?

If not, then, for there can be no other alternative, we must abandon, and forever, our noble civilizing and elevating mission. Finally, as a nation we must cease to be. Nor would it be long before the final stage would come.

No Englishman acquainted with his country's progress, could fail to acknowledge that the general tendency underlying our marvellous expansion has been for the good and not the evil of the world. "Righteousness exalteth a nation: but sin is a reproach to any people."

We cannot deny that in empire-building many dark and unholy deeds have sullied our fair escutcheon, yet looking at things broadly great things have been done—things worthy of a place in history, which are to the honor, the glory of this great land.

But greatness, singular greatness provokes the hostility of others. "Let us pull down and humiliate this proud and lofty race."

Hence the "pin-pricks," hence the petty hindrances in the way of progress. This is why international disputes are so difficult of adjustment, and arbitration—earth's ideal solution—fails to receive the support, which its inherent beauty would seem to claim.

Then war is wrong? Yes, always wrong, in some grave aspect; not equally, or always wrong on both sides, perhaps, yet lacking the sanction of philanthropy here or there.

Wage it as you will, it is ever a gigantic evil. It is abhorrent to our better nature; but national subjugation might easily become a greater evil still.

The first recorded war was to redress a grievance and to punish an illegal capture. It is far back in the history of the world as you may suppose; and it is pictured for us in the 14th chapter of Genesis.

Chedorlaomer, King of Elam, with three confederate kings, invaded the cities of the plain which had combined for mutual defense, and defeating the combined armies took Sodom and Gomorrah and plundered them. Now, the great patriarch Abraham was a man of peace. From the history of the Bible,

it is clear he was not under the influence of covetousness or ambition. Yet, living in the midst of hostile nations he wisely trained his servants to the use of arms. Lot having been carried captive, the act of rescue was as necessary as it was justifiable. The day was won by stratagem and it is as interesting as it is significant that Abraham received the testimony of God's approval. Melchizedek met him, blessed him and added, "Blessed be the Most High God which hath delivered thine enemies into thy hand."

"But you forget," it may be urged, "the spirit of the age, differing so widely from that of the nineteenth century." No, we do not forget; but man is man however many centuries may intervene. The conditions favorable to warfare existed then. They exist, alas! to-day.

"The fallen world," it has been said, "is a fighting world. It will be so more and more to the end of the age." Quite true.

When President Lincoln received the news that the Confederates were retreating from Gettysburg, he called on the wounded General Sickles. "Were you not worried, Mr. President, as to what might be the result of the battle?" General Sickles asked.

"Oh, no. I thought it would come out all right."

"But you must be the only man who thought so," replied the general.

"Well," said the President, "I will tell you why I felt confident we should win at Gettysburg. Before the battle I retired to my room in the White House and prayed to Almighty God to give us victory. I said to Him that this was His war and that if He would stand by the nation now I would stand by Him for the rest of my life. I rose from my knees with a feeling of deep and serene confidence."

Exactly so. There are wars which are God's wars. Over and over again the sword has been God's scourge, with which He has punished nations for their sins. And so it is that there are wrongs which make war right; wrongs which, in the Providence of God, and, with the sanction of Christianity itself, can only be adjusted upon the battle-field.

It is a calamity always; frequently it is an untold blessing.

Man, it should not be forgotten, is not an isolated unit. He cannot, even if he would, live apart. He has duties and responsibilities towards his fellow men. The principle of human brotherhood demands from him from time to time the sacrifice of self. To the utmost limit of empire this principle extends—and beyond.

A cruel injustice has been done, and immediately there is a cry of righteous indignation. Well is it, indeed, that it can be so. And injustices do arise. The Egyptian campaign so admirably conceived and so brilliantly carried to a successful close was the triumph of civilization over barbarism. It was to inaugurate peace and order where bloodshed and rapine were a daily blot upon humanity. And peace and order have been established. Will any one question the moral necessity that arose for war?

The Cuban war was a righteous war, undertaken to abolish grievous wrongs which Spain never would have redressed; nay, which for centuries she had fostered—to her eternal shame.

And now once again it would seem that Great Britain, loving peace more than all the glories of war—is about to unsheathe the sword. Sadly, reluctantly, yet with step steadied by the conviction that the cause is just, she proceeds along her path. O England, how could we long for thee to put up thy sword forever, to hurl no more thy brave battalions upon the foe! But thou hast thy mission to accomplish. Thou hast shown a patience almost invincible, almost divine, till patience longer held, itself becomes a crime, provoking the very ills it would abolish.

Is it right or is it wrong to protect thy sons? Is it right or is it wrong to shield from gross injustice those of thine who have learnt to reverence rightly God's great gift of liberty?

The answer comes quick and incisive. "It is right—it is right."

Then it is right to have soldiers and sailors. And then it is right for some to be soldiers and sailors and whole-hearted ones too, if soldiers and sailors at all.

Sorry should we be to lose from the annals either of Christianity or of war, such names as Havelock, Vicars, Gardiner, Burns, Gordon, and a crowd of others, all the names of men of

valor both in the cause—the righteous cause of their country and their God.

"Well done thou good and faithful servant" may be as applicable to the heroes of our wars, as to the devoted followers of their Lord.

AMERICAN RAILROADS: THEIR RELATION TO COMMERCIAL, INDUSTRIAL AND AGRICULTURAL INTERESTS.*

(*Extracts.*)

AN AGE OF TRANSPORTATION.

ONE of our great writers has said of this closing period of the nineteenth century, that it is an age of transportation.

Transportation underlies material prosperity in every department of commerce. Without transportation commerce would be impossible.

Those states and nations are rich, powerful and enlightened whose transportation facilities are best and most extended. The dying nations are those with little or no transportation facilities.

Mr. Mulhall, the British statistician, in his work on "The Wealth of Nations," said of the United States in 1895: "If we take a survey of mankind, in ancient or modern times, as regards the physical, mechanical and intellectual force of nations, we find nothing to compare with the United States."

Mr. Mulhall proved by his statistics that the working power of a single person in the United States was twice that of a German or Frenchman, more than three times that of an Austrian and five times that of an Italian. He said the United States was then the richest country in the world, its wealth exceeding that of Great Britain by thirty-five per cent., and added

* An address by GEORGE H. DANIELS, General Passenger Agent, New York Central & Hudson River Railroad, and President of the American Association of General Passenger Agents, before the International Commercial Congress, at Philadelphia, October twenty-fifth, 1899.

that in the history of the human race no nation ever before possessed forty-one millions of instructed citizens.

Should Mr. Mulhall revise his figures to-day, the differences would all be in favor of the United States, for in the past eighteen months we have demonstrated the superiority of our manufactures in every direction, and our ability to cope successfully with questions which have heretofore been handled exclusively by the older nations is now recognized by all the world.

RESULTS OF WAR BETWEEN JAPAN AND CHINA.

In an address before the New York Press Association, four years ago, I referred to the future of our export trade, as follows: "One of the inevitable results of the war between Japan and China will be the opening to the commerce of the world of fields heretofore unknown, perhaps the richest on the globe," and in urging the members of the New York Press Association to do everything in their power to assist in securing to the United States a portion of the great commerce to be developed between the western nations and these two old countries of the world, I asked these questions:

"Shall the grain in China and Japan be harvested by machines manufactured in the United States, or will the manufacturers of England and Germany supply them?

"Shall the fires in Yokohama and Tientsin be extinguished with engines built at Seneca Falls, or will France or England send their fire engines to Japan and China?

"Will the locomotives to haul the fast mail trains between Yokohama and the interior of Japan and through the rich valleys of China be built at Schenectady, Philadelphia or Dunkirk, or will our Oriental friends and neighbors in the Pacific buy them of our English cousins?

I predicted that active efforts towards the extension of American commerce by commercial bodies, supported by a liberal and broad-minded policy on the part of our Government in connection with the aggressive action of the transportation companies, would undoubtedly secure to the United States the blessings that come from a great and varied commerce, and I said that the New York Press Association, and similar associations

all over the country, could stimulate a public spirit that would insure the important results outlined.

At that time we had no idea that a war between one of the old nations of the earth and our young republic would be fought; at that time we had no idea that American manufacturers would be furnishing locomotives to the English railroads as well as to those of nearly every other country on the globe. No one thought four years ago that American bridge builders would go into the open market and successfully compete for the building of a great steel bridge in Egypt; nor that in so brief a time American engineers would be building railroads into the interior of China from her most important seaports.

At that time no one supposed that the Trans-Siberian Railway would be laid with steel rails made in Pennsylvania, upon cross-ties from the forests of Oregon, and that its trains would be hauled by American locomotives; nor that this great railway which is to stretch from St. Petersburg to Vladivostock and Port Arthur, a distance of more than 6000 miles, would be completed two years in advance of the original expectation, as a result of the use of American construction tools and machinery.

But this is all true, and it is further true that the tools and machinery for the construction of the western portion of the Trans-Siberian Railway were supplied by American manufacturers, at about one-half the price that Russia had been paying previously, and with this American machinery the Russians are able to do nearly double the work that they could perform with the machinery manufactured in other countries.

AN EMPIRE EXPRESS IN THE ORIENT.

In a letter from a friend in Tokio, Japan, written only a short time ago, there was this significant sentence: "You will be interested in knowing that I have hanging on the wall of my office a framed picture of your 'Empire State Express,' and we expect in the near future to be hauling a Japanese 'Empire Express' with an American locomotive." They have now in Japan more than one hundred locomotives that were built in the United States. In Russia they have nearly one thousand American locomotives, and practically every railway in Great Britain has ordered locomotives from this country since the beginning of the war with Spain.

In this connection it will be interesting to note in passing that the second American locomotive was built at the West Point Foundry, near Cold Spring, on the Hudson River, and was called the "Best Friend," and from that day to this the locomotive has been one of the best friends of this republic.

OUR SUPERIOR RAILWAY EQUIPMENT.

But it is not alone our locomotives that have attracted the attention of foreigners who have visited our shores, our railway equipment generally has commanded admiration and is now receiving the highest compliment, namely, imitation by many of our sister nations.

Prince Michel Hilkoff, Imperial Minister of Railways of Russia, has, since his visit to the United States a few years ago, constructed a train on much the same lines as the "Limited Trains" of the New York Central and the Pennsylvania.

Only a short time ago, at the request of one of the Imperial Commissions of Germany, I sent to Berlin photographs of the interior and exterior of our finest cars and other data in relation to the operation of American railways. Several other countries have asked for similar information and there is a general waking up of foreign nations on the subject of transportation, brought about mainly by the wonderful achievements of American railways.

The demand for American locomotives from all parts of the world is attributable, in the first place, to the superior quality of our machinery, and in the second place, to the fact that the General Passenger Agents of the American railways have, through their advertising, made the marvellous results accomplished by our locomotives, household words in every country on the globe.

A NAVAL OBJECT LESSON.

The admiration of foreign nations for us is not by any means confined to railways. One incident that startled the entire world, and directed the attention of thinking people everywhere to American achievements in machinery, was that of the United States battle-ship *Oregon*, built at the Union Iron Works in San Francisco, and which steamed a distance of more than half round the globe, without loosening a bolt or starting

a rivet, and arrived at her post off the island of Cuba prepared to perform any service required of her; and then having given a most satisfactory account of herself on that memorable third of July, 1898, off Santiago, she steamed back to the Pacific, and without unnecessary delay crossed that great ocean to join Admiral Dewey's fleet at Manila. On her arrival there the Secretary of the Navy received one of those condensed messages, for which the Admiral—who has shed undying lustre upon the name of the American navy—is so noted, which read as follows:

"MANILA, March 18, 1899.

"The *Oregon* and *Iris* arrived to-day. The *Oregon* is in fit condition for any duty. DEWEY."

These demonstrations of what American shipbuilders can accomplish created a desire on the part of every naval power in the world for ships of the character of the *Oregon*, and the logical conclusion of thinking people was that if we could build ships like the *Oregon*, anything else that we built must be of a superior quality, and the demand for American manufactures began to increase and is increasing with each day until thousands of our factories are now running night and day, and business in the United States was never in a more prosperous condition than it is in these October days of 1899.

TRADE AND THE FLAG.

It has been said by a great American writer that "Trade follows the flag." Recent events have placed our flag upon the islands of the Pacific, directly in the natural track between the Pacific coast of the United States and Japan and China, and as we contemplate our growing commerce with these old nations, we are reminded of the prophetic statement made at the completion of the first continuous line of railroad between the Atlantic and Pacific Oceans, by the joining of the Union and Central Pacific Railroads, more than thirty years ago, by that prophet of his time, Thomas H. Benton, who, standing on the summit of the Rocky Mountains and pointing towards the Pacific Ocean, said: "There is the East; there is India."

Previous to the construction of this artery of commerce, the route to India had been by the way of our Atlantic seaports and Europe, but with the completion of our trans-continental

system of railways, the route was changed, and a better way was found by way of the Pacific seaports and the Pacific Ocean.

OUR COMMERCE IN THE ORIENT.

There are some who seem to think that we might get along without trade with China, and that it is a new fangled idea that Chinese trade can especially benefit the United States.

Commerce with China began one hundred and fifteen years ago, the first vessel sailing from New York on Washington's Birthday in the year 1774. This vessel returned to New York May 11th, 1775. The success of the venture was such as to warrant its repetition, and from that day to this, trade between the United States and China has continued without material interruption until it is now greater in importance and value than that of any other nation trading with China, with the single exception of Great Britain. If we are to continue as one of the great nations of the world, we can hardly afford to ignore a country that comprises one-twelfth of the land area and nearly one fourth of the population of the globe.

CHANGE IN SENTIMENT.

At times there have been periods of legislation in the United States adverse to the great transportation interests of the country, almost invariably the result of a misunderstanding of the real situation, and the hasty legislation of such times has usually been repealed upon the sober second thought of the people, for in the language of our great Lincoln: "You can fool all the people some of the time, some of the people all the time, but you can't fool all the people all the time.

* * *

GERMANY EXTENDS ITS RAILROADS AND PRAISES OURS.

The Emperor of Germany in his speech to the Prussian Diet, in January last, did not lay the greatest stress upon the necessity for increasing the army, or for the construction of additional ships for the navy, but he did impress upon his hearers the great importance of extending the railroads and the navigable canals.

In order that the German nation might have knowledge of the most advanced theories and practice in the construction and

operation of railways, an Imperial German Commission was sent to the United States a short time ago, for the purpose of examining American railways and making such recommendations as their investigation should suggest.

In the report of this commission, which was recently published, one of the first sentences is as follows: "Lack of speed, lack of comfort, lack of cheap rates, are the charges brought against the German Empire's railways, as compared with those of the United States." They recommended the adoption of many of our methods, explaining in their report that they were far superior, not only to those in vogue in Germany, but also superior to those of any other country.

INFLUENCE OF RAILROADS IN RUSSIA.

The Budget of the Russian Empire for 1899 discloses the almost incredible efforts in railway extension that the imperial government of the Czar is putting forth; in this year alone, one hundred and nine million roubles will be devoted entirely to the railways, and during the past twelve years four hundred and twenty-five million roubles have been thus expended.

The immense sums which the Russians are devoting to the extension of their railways entirely overshadow the demands of both the army and navy.

RAILROAD MEN IN THE CABINET OF THE CZAR.

It is a fact not generally known that the two men who are nearest to the Czar of Russia, and who, perhaps, have a greater influence than any others in shaping the commercial policy of the present government of that great empire are, M. de Witte, the Imperial Minister of Finance, who, sixteen years ago was a station agent at a small town on one of the railways of Russian Poland; the other is Prince Michel Hikoff, who, when little more than a boy left St. Petersburg to seek his fortune, learned mechanical engineering in the city of Philadelphia, and who is to-day the Imperial Minister of Railways of the Russian Empire, and a member of the Cabinet of the Czar.

CHINA JOINS THE ARMY OF PROGRESS.

More than twenty years ago one of the Imperial Ministers of China, in a report to the Emperor and Empress, urged upon

them the construction of a system of railways from their principal ports to the interior of the empire. In his report he used this significant sentence:

"Japan, which is a mere speck upon the map, is building railways, and her people are being benefited thereby. Should not your celestial Empire, which comprises one-twelfth of the land area, and one-quarter of the population of the globe, do as well as this handful of people among the islands of the sea?"

To-day this suggestion is being carried out, and railroads are being constructed in a dozen different directions in China.

RAILROADS SUPERSEDE CANALS.

One hundred years ago the Governor of the great State of New York advised his friends not to invest their money or waste their time in aiding the building of railroads, expressing the opinion, that while it was possible that improved methods of construction and perfected machinery might, in the remote future, enable the people to move a car upon a railroad at the rate of five or six miles per hour, he did not believe that they could ever be made of material advantage, and that any attempt to transport passengers and freight by railroad, from one part of the country to another, must result in endless confusion and loss. The Governor died in the belief that the canal was the only means of conveyance for a great commerce.

Notwithstanding his prediction, the railroads have grown to such vast proportions, that to-day the world's entire stock of money, gold, silver and paper, would not purchase one-third of its railroads.

* * *

A CENTURY OF MARVELS.

Mr. Chairman, we are approaching the end of the nineteenth century, a century which Henry Drummond said, "has added more to the sum of human learning than all the centuries that have passed."

A few examples of the achievements of American railroads in a little more than half a century, and many of them within the last twenty-five years, cannot be inappropriate.

Before the railroads were built, it took a week to go from New York to Buffalo, nearly three weeks from New York to

Chicago; and at that time, no man would have thought of making a trip from New York to the Pacific Coast, except a few of the hardiest pioneers, and when on such an occasion the good-byes were said, it was expected on both sides that it would be forever. If to-morrow night you should place a letter on the Pacific and Oriental mail train, which leaves New York at 9.15, you may be sure that your correspondent in San Francisco will be reading it next Monday night—four days from New York.

The framers of our Constitution would have considered a man entirely beside himself, who would have suggested such a possibility.

WHAT THE RAILROADS HAVE ACCOMPLISHED.

In 1875 the States east of the Missouri River were sending food and clothing to the starving people of Kansas.

Thanks to the facilities afforded by the railroads the corn crop of Kansas this year is three hundred and forty million bushels.

It seems but a very few years since I made my first trip to Colorado, and stopped on my way at the home of Buffalo Bill, at North Platte, Nebraska, on the Union Pacific. At Ogalalla, fifty-one miles west of North Platte, the Sioux Indians were roaming over the prairies and making more or less trouble for the early settlers who ventured so far out of the beaten paths of civilization. The Nebraska corn crop this year covers eight million acres, and the yield is two hundred and ninety million bushels.

Previous to the construction of the Northern Pacific, the Great Northern, Northwestern, St. Paul, Burlington, and other railways that traverse that wonderful region known as the "wheat belt," there was nothing to be seen but prairie grass and an occasional band of untamed savages.

Minnesota this year will ship ninety million bushels of wheat, South Dakota forty-five million bushels, North Dakota sixty-five million bushels and Montana four million bushels.

DEVELOPMENT OF THE PACIFIC COAST.

In 1849 there came across the continent reports of the discovery of gold in California, but the only means of reaching its

Golden Gate was by sea around Cape Horn, or the long and perilous journey, with ox teams, across the plains, including what was then styled in our geographies the American desert, and through the hazardous mountain passes of the western part of the continent.

The completion of the Pacific railroads changed all this, and opened new fields for all kinds of enterprises, in an unexplored territory stretching over more than two thousand miles to the west, northwest and southwest of the Mississippi River, the products of which region were practically valueless until the means of transporting them were provided by the railroads.

The wheat crop of California this year is 37,000,000 bushels. The largest crop ever produced in California was in 1880, when owing to exceptionally favorable weather conditions that State produced 63,000,000 bushels.

The gold output of California for the year 1899 is estimated at $16,000,000.

The vineyards and orange groves of California would be of practically little value were it not for the fact that the railroads, by their trains of refrigerator and ventilated fruit cars, make it possible to transport the products of her fertile valleys to all sections of the country.

It seems but yesterday that the railroads were completed into Portland, Oregon, Tacoma and Seattle, Washington, and it is marvelous that for the year ended June 30, 1899, there was exported from the Columbia River Valley 16,000,000 bushels of wheat and from the Puget Sound region 10,000,000 bushels.

Oregon and Washington form the northwest corner of the territory of the United States, south of the line of British Columbia, and are directly on the route to our extreme northwest possession, Alaska.

The wheat crop of the States of Oregon and Washington for the year 1899 is 48,600,000 bushels.

There was exported during the year ended June 30, 1899, from the Columbia River direct to foreign ports, 1,100,000 barrels of flour, and from Puget Sound points 800,000 barrels.

Colorado, which, with its inexhaustible mines of gold, silver, lead, iron and coal, forms almost an empire in itself, will produce this year of 1899 enormous quantities of each of these

minerals in addition to a magnificent crop of wheat, fruit and vegetables.

Thanks to her railroad facilities, Montana is to-day the richest copper region in the world.

Without railroads Kansas, Nebraska, Minnesota, North and South Dakota, Montana, Colorado, California, Oregon and Washington would still be the home of savages.

SERVICE OF AMERICAN RAILROADS.

It is beyond question that American railroads to-day furnish the best service in the world, at the lowest rates of fare, at the same time paying their employés very much higher wages than are paid for similar service in any other country ou the globe.

In the United States the first-class passenger fares last year averaged 2.14 cents per mile, although on some large railways the average was several miles less than two cents per mile; in England the first-class fare is four cents per mile; third-class fare for vastly inferior service is two cents per mile, but only on certain parliamentary trains.

In Prussia, the fare is 2.99 cents per mile; in Austria, 3.05 cents per mile, and in France, 3.36 cents per mile.

Our passenger cars excel those of foreign countries in all that goes to make up the comfort and convenience of a journey.

Our sleeping and parlor car system is vastly superior to theirs; our baggage system is infinitely better than theirs and arranged upon a much more liberal basis. American railroads carry 150 pounds of baggage free, while the German railroads carry only 55 pounds free.

The lighting of our trains is superb, while the lighting of trains on most foreign lines is wretched.

SOME STRIKING EXAMPLES.

I may be pardoned for citing two examples of what I mean by the unsurpassed passenger train facilities of American railways.

A single locomotive recently hauled a passenger train of sixteen cars, nine of which were sleeping and parlor cars, from New York to Albany, a distance of 143 miles, in three hours and 15 minutes, which is 44 miles per hour, and is the regular

schedule time of this train. The train weighed 1,832,000 pounds, and was 1212 feet—or nearly a quarter of a mile—long.

The Empire State Express has for years been making the run from New York to Buffalo, 440 miles, in eight hours and 15 minutes, an average speed of 53⅓ miles an hour, including four stops—two of them for changing engines—and 28 slow-downs, on account of running through incorporated towns and cities.

For one stretch of 22 miles, another of 17 miles, another of 16 miles, and another of 60 miles, the regular schedule time is exactly 60 miles an hour. For one stretch of 12 miles it is 63.40 miles an hour. For another stretch of nearly ten miles, it is 64.86 miles an hour.

The weight of this train is 608,000 pounds, and it has seating capacity for 248 passengers.

These are some of the achievements of American railways in passenger service that have not been approached in any other country on the globe, and in my opinion it is achievements of this character that have made it possible for the United States to expand its commerce with such astounding rapidity.

The fact that American passenger service attracts the attention of people of every other country who visit our shores is demonstrated by the desire of all foreigners to ride on the Empire State Express—the fastest long-distance train in the world, and the further desire to examine the magnificent machines that haul our great trains.

EXTENT OF AMERICAN COMMERCE.

The extent of our commerce, both domestic and foreign, may well astonish the representatives of other lands who visit us for the first time, but the extent of the territory of the United States made possible by the negotiations of Admiral Dewey in May, 1898, supplemented by those of the Peace Commission at Paris, will surprise our own people, as well as our cousins from across the water.

We thought before the purchase of Alaska that our territory was large, but what vistas of commercial enterprise present themselves to us as we contemplate the fact that it is 3144 miles from San Francisco to St. Michaels, Alaska, where an

empire in extent awaits development by American capital and energy—and that it is 7729 miles from San Francisco to Manila on the island of Luzon, and that this is only one of hundreds of rich islands that await similar development, not overlooking the Hawaiian islands which lie in our new ocean pathway.

Saturday afternoon last a United States cruiser left New York for Manila, via the Suez Canal, and the Sunday papers stated it would take her three months to reach her destination.

Railroad men will be interested in knowing that the Manila and Dagupan railroad on the island of Luzon, which is the principal one of our Phillippine group, is laid upon mahogany ties, the road passing through forests of that valuable wood and over inexhaustible beds of coal and other rich minerals. Shall we wonder then that American railroads are seeking connections that will secure a portion of the commerce that must come from the development of this rich region, which has so recently been added to the territory of the United States?

TRADE FOLLOWS THE FLAG.

If it is true that "trade follows the flag," then with coöperation and reciprocity between the great transportation interests of the United States and the commercial and industrial interests of our republic, and with proper encouragement given to American shipping, our commerce should be as diversified as are the products of our soil, our mines and our mills; and our export trade should reach every mart on the earth, and should flourish on every sea and river where vessels ply; for, since the almost miraculous events in Manila Bay and off Santiago, we may paraphrase the sentiment of Joaquin Miller in regard to Colorado and say of our flag, "it floats forever in the sun."

FOOD POISONING.

By VICTOR C. VAUGHAN,

Professor of Hygiene in the University of Michigan.

(*From Appleton's Popular Science Monthly.*)

WITHIN the past fifteen or twenty years cases of poisoning with foods of various kinds have apparently become quite numerous. This increase in the number of instances of this kind has been both apparent and real. In the first place, it is only within recent years that it has been recognized that foods ordinarily harmless may become most powerful poisons. In the second place, the more extensive use of preserved foods of various kinds has led to an actual increase in the number of outbreaks of food poisoning.

The harmful effects of foods may be due to any of the following causes:

1. Certain poisonous fungi may infect grains. This is the cause of epidemics of poisoning with ergotized bread, which formerly prevailed during certain seasons throughout the greater part of continental Europe, but which are now practically limited to southern Russia and Spain. In this country ergotism is practically unknown, except as a result of the criminal use of the drug ergot. However, a few herds of cattle in Kansas and Nebraska have been quite extensively affected with this disease.

2. Plants and animals may feed upon substances that are not harmful to them, but which may seriously affect man on account of his greater susceptibility. It is a well-known fact that hogs may eat large quantities of arsenic or antimony without harm to themselves, and thus render their flesh unfit for food for man. It is believed that birds that feed upon the mountain laurel furnish a food poisonous to man.

3. During periods of the physiological activity of certain glands in some of the lower animals the flesh becomes harmful to man. Some species of fish are poisonous during the spawning season.

4. Both animal and vegetable foods may become infected with the specific germs of disease and serve as the carriers of

the infection to man. Instances of the distribution of typhoid fever by the milkman are illustrations of this.

5. Animals may be infected with specific diseases, which may be transmitted to man in the meat or milk. This is one of the means by which tuberculosis is spread.

6. Certain nonspecific, poison-producing germs may find their way into foods of various kinds, and may by their growth produce chemical poisons either before or after the food has been eaten. This is the most common form of food poisoning known in this country.

We will briefly discuss some foods most likely to prove harmful to man.

Mussel Poisoning.—It has long been known that this bivalve is occasionally poisonous. Three forms of mussel poisoning are recognized. The first, known as *Mytilotoxismus gastricus*, is accompanied by symptoms practically identical with those of cholera morbus. At first there is nausea, followed by vomiting, which may continue for hours. In severe cases the walls of the stomach are so seriously altered that the vomited matter contains considerable quantities of blood. Vomiting is usually accompanied by severe and painful purging. The heart may be markedly affected, and death may result from failure of this organ. Examination after death from this cause shows the stomach and small intestines to be highly inflamed.

The second form of mussel poisoning is known as *Mytilotoxismus exanthematicus* on account of visible changes in the skin. At first there is a sensation of heat, usually beginning in the eyelids, then spreading to the face, and finally extending over the whole body. This sensation is followed by an eruption, which is accompanied by intolerable itching. In severe cases the breathing becomes labored, the face grows livid, consciousness is lost, and death may result within two or three days.

The most frequently observed form of mussel poisoning is that designated as *Mytilotoxismus paralyticus*. As early as 1827 Combe reported his observations upon thirty persons who had suffered from this kind of mussel poisoning. The first symptoms, as a rule, appeared within two hours after eating the poisonous food. Some suffered from nausea and vomiting, but these were not constant or lasting symptoms. All complained

of a prickly feeling in the hands, heat and constriction of the throat, difficulty of swallowing and speaking, numbness about the mouth, gradually extending over the face and to the arms, with great debility of the limbs. Most of the sufferers were unable to stand; the action of the heart was feeble, and the face grew pale and expressed much anxiety. Two of the thirty cases terminated fatally. Post-mortem examination showed no abnormality.

Many opinions have been expressed concerning the nature of harmful mussels. Until quite recently it was a common belief that certain species are constantly toxic. Virchow has attempted to describe the dangerous variety of mussels, stating that it has a brighter shell, sweeter, more penetrating, bouillon-like odor than the edible kind, and that the flesh of the poisonous mussel is yellow; the water in which they are boiled becomes bluish.

However, this belief in a poisonous species is now admitted to be erroneous. At one time it was suggested that mussels became hurtful by absorbing the copper from the bottoms of vessels, but Christison made an analysis of the mussels that poisoned the men mentioned by Combe, with negative results, and also pointed out the fact that the symptoms were not those of poisoning with copper. Some have held that the ill effects were due wholly to idiosyncrasies in the consumers, but cats and dogs are affected in the same way as men are. It has also been believed that all mussels are poisonous during the period of reproduction. This theory is the basis of the popular superstition that shellfish should not be eaten during the months in the name of which the letter "r" does not occur. At one time this popular idea took the form of a legal enactment in France forbidding the sale of shellfish from May 1st to September 1st. This widespread idea has a grain of truth in it, inasmuch as decomposition is more likely to alter food injuriously during the summer months. However, poisoning with mussels may occur at any time of the year.

It has been pretty well demonstrated that the first two forms of mussel poisoning mentioned above are due to putrefactive processes, while the paralytic manifestations seen in other cases are due to a poison isolated a few years ago by Brieger, and

named by him mytilotoxin. Any mussel may acquire this poison when it lives in filthy water. Indeed, it has been shown experimentally that edible mussels may beeome harmful when left for fourteen days or longer in filthy water; while, on the other hand, poisonous mussels may become harmless if kept four weeks or longer in clear water. This is true not only of mussels, but of oysters as well. Some years ago many cases of poisoning from oysters were reported at Havre. The oysters had been taken from a bed near the outlet of a drain from a public water closet. Both oysters and mussels may harbor the typhoid bacillus, and may act as carriers of this germ to man.

There should be most stringent police regulations against the sale of all kinds of mollusks, and all fish as well, taken from filthy waters. Certainly one should avoid shellfish from impure waters, and it is not too much to insist that those offered for food should be washed in clean water. All forms of clam and oyster broth should be avoided when it has stood even for a few hours at summer heat. These preparations very quickly become infected with bacteria, which develop most potent poisons.

Fish Poisoning. — Some fish are supplied with poisonous glands, by means of which they secure their prey and protect themselves from their enemies. The "dragon weaver," or "sea weaver" (*Trachinus draco*), is one of the best known of these fish. There are numerous varieties widely distributed in salt waters. The poisonous spine is attached partly to the maxilla and partly to the gill cover at its base. This spine is connected with a poisonous gland; the spine itself is grooved and covered with a thin membrane, which converts the grooves into canals. When the point enters another animal its membrane is stripped back and the poison enters the wound. Men sometimes wound their feet with the barbs of this fish while bathing. It also occasionally happens that a fisherman pricks his fingers with one of these barbs. The most poisonous variety of this fish known is found in the Mediterranean Sea. Wounds produced by these animals sometimes cause death. In *Synanceia brachio* there are in the dorsal fin thirteen barbs, each connected with two poison reservoirs. The secretion from these glands is clear, bluish in color, and acid in reaction, and when introduced beneath the skin causes local gangrene and, if in sufficient quantity, general

paralysis. In *Plotosus lineatus* there is a powerful barb in front of the ventral fin, and the poison is not discharged unless the end of the barb is broken. The most poisonous variety of this fish is found only in tropical waters. In *Scorpœna scrofa* and other species of this family there are poison glands connected with the barbs in the dorsal and in some varieties in the caudal fin.

A disease known as *kakke* was a few years ago quite prevalent in Japan and other countries along the eastern coast of Asia. With the opening up of Japan to the civilized world the study of this disease by scientific methods was undertaken by the observant and intelligent natives who acquired their medical training in Europe and America. In Tokio the disease generally appears in May, reaches its greatest prevalence in August, and gradually disappears in September and October. The researches of Miura and others have fairly well demonstrated that this disease is due to the eating of fish belonging to the family of *Scombridæ*. There are other kinds of fish in Japanese waters that undoubtedly are poisonous. This is true of the *tetrodon*, of which, according to Remey, there are twelve species whose ovaries are poisonous. Dogs fed upon these organs soon suffered from salivation, vomiting and convulsive muscular contractions. When some of the fluid obtained by rubbing the ovaries in a mortar was injected subcutaneously in dogs the symptoms were much more severe, and death resulted. Tahara states that he has isolated from the roe of the tetrodon two poisons, one of which is a crystaline base, while the other is a white, waxy body. From 1885 to 1892, inclusive, 933 cases of poisoning with this fish were reported in Tokio, with a mortality of seventy-two per cent.

Fish poisoning is quite frequently observed in the West Indies, where the complex of symptoms is designated by the Spanish term *siguatera*. It is believed by the natives that the poisonous properties of the fish are due to the fact that they feed upon decomposing medusæ and corals. In certain localities it is stated that all fish caught off certain coral reefs are unfit for food. However, all statements concerning the origin and nature of the poison in these fish are mere assumptions, since no scientific work has been done. Whatever the source of the poison

may be, it is quite powerful, and death not infrequently results. The symptoms are those of gastro-intestinal irritation followed by collapse.

In Russia fish poisoning sometimes causes severe and widespread epidemics. The government has offered a large reward for any one who will positively determine the cause of the fish being poisonous and suggest successful means of preventing these outbreaks. Schmidt, after studying several of these epidemics, states the following conclusions:

(*a*) The harmful effects are not due to putrefactive processes. (*b*) Fish poisoning in Russia is always due to the eating of some member of the sturgeon tribe. (*c*) The ill effects are not due to the method of catching the fish, the use of salt, or to imperfections in the methods of preservation. (*d*) The deleterious substance is not uniformly distributed through the fish, but is confined to certain parts. (*e*) The poisonous portions are not distinguishable from the nonpoisonous, either macroscopically or microscopically. (*f*) When the fish is cooked it may be eaten without harm. (*g*) The poison is an animal alkaloid produced most probably by bacteria that cause an infectious disease in the fish during life.

The conclusion reached by Schmidt is confirmed by the researches of Madame Sieber, who found a poisonous bacillus in fish which had caused an epidemic.

In the United States fish poisoning is most frequently due to decomposition in canned fish. The most prominent symptoms are nausea, vomiting, and purging. Sometimes there is a scarlatinous rash, which may cover the whole body. The writer has studied two outbreaks of this kind of fish poisoning. In both instances canned salmon was the cause of the trouble. Although a discussion of the treatment of food poisoning is foreign to this paper, the writer must call attention to the danger in the administration of opiates in cases of poisoning with canned fish. Vomiting and purging are efforts on the part of Nature to remove the poison, and should be assisted by the stomach tube and by irrigation of the colon. In one of the cases seen by the writer large doses of morphine had been administered in order to check the vomiting and purging and to relieve the pain; in this case death resulted. The danger of

arresting the elimination of the poison in all cases of food poisoning cannot be too emphatically condemned.

Meat Poisoning.—The diseases most frequently transmitted from the lower animals to man by the consumption of the flesh or milk of the former by the latter are tuberculosis, anthrax, symptomatic anthrax, pleuro-pneumonia, trichinosis, mucous diarrhœa, and actinomycosis. It hardly comes within the scope of this article to discuss in detail the transmission of these diseases from the lower animals to man. However, the writer must be allowed to offer a few opinions concerning some mooted questions pertaining to the consumption of the flesh of tuberculous animals. Some hold that it is sufficient to condemn the diseased part of the tuberculous cow, and that the remainder may be eaten with perfect safety. Others teach that "total seizure" and destruction of the entire carcass by the health authorities are desirable. Experiments consisting of the inoculation of guinea pigs with the meat and meat juices of tuberculous animals have given different results to several investigators. To one who has seen tuberculous animals slaughtered, these differences in opinion and in experimental results are easily explainable. The tuberculous invasion may be confined to a single gland, and this may occur in a portion of the carcass not ordinarily eaten; while, on the other hand, the invasion may be much more extensive and the muscles may be involved. The tuberculous portion may consist of hard nodules that do not break down and contaminate other tissues in the process of removal, but the writer has seen a tuberculous abscess in the liver holding nearly a pint of broken down infected matter ruptured or cut in removing this organ, and its contents spread over the greater part of the carcass. This explains why one investigator succeeds in inducing tuberculosis in guinea pigs by introducing small bits of meat from a tuberculous cow into the abdominal cavity, while another equally skillful bacteriologist follows the same details and fails to get positive results. No one desires to eat any portion of a tuberculous animal, and the only safety lies in "total seizure" and destruction. That the milk from tuberculous cows, even when the udder is not involved, may contain the specific bacillus has been demonstrated experimentally. The writer has suggested that every one selling

milk should be licensed, and the granting of a license should be dependent upon the application of the tuberculin test to every cow from which milk is sold. The frequency with which tuberculosis is transmitted to children through milk should justify this action.

That a profuse diarrhœa may render the flesh of an animal unfit food for man was demonstrated by the cases studied by Gärtner. In this instance the cow was observed to have a profuse diarrhœa for two days before she was slaughtered. Both the raw and cooked meat from this animal poisoned the persons who ate it. Medical literature contains the records of many cases of meat poisoning due to the eating of the flesh of cows slaughtered while suffering from puerperal fever. It has been found that the flesh of animals dead of symptomatic anthrax may retain its infection after having been preserved in a dry state for ten years.

One of the most frequently observed forms of meat poisoning is that due to the eating of decomposed sausage. Sausage poisoning, known as *botulismus*, is most common in parts of Germany. Germans who have brought to the United States their methods of preparing sausage occasionally suffer from this form of poisoning. The writer had occasion two years ago to investigate six cases of this kind, two of which proved fatal. The sausage meat had been placed in uncooked sections of the intestines and alternately frozen and thawed and then eaten raw. In this instance the meat was infected with a highly virulent bacillus, which resembled very closely the *Bacterium coli.*

In England, Ballard has reported numerous epidemics of meat poisoning, in most of which the meat had become infected with some nonspecific, poison-producing germ. In 1894 the writer was called upon to investigate cases of poisoning due to the eating of pressed chicken. The chickens were killed Tuesday afternoon and left hanging in a market room at ordinary temperature until Wednesday forenoon, when they were drawn and carried to a restaurant and here left in a warm room until Thursday, when they were cooked (not thoroughly), pressed, and served at a banquet in which nearly two hundred men participated. All ate of the chicken, and were more or less seriously

poisoned. The meat contained a slender bacillus, which was fatal to white rats, guinea pigs, dogs, and rabbits.

Ermengem states that since 1867 there have been reported 112 epidemics of meat poisoning, in which 6000 persons have been affected. In 103 of these outbreaks the meat came from diseased animals, while in only five was there any evidence that putrefactive changes in the meat had taken place. My experience convinces me that in this country meat poisoning frequently results from putrefactive changes.

Instances of poisoning from the eating of canned meats have become quite common. Although it may be possible that in same instances the ill effects result from metallic poisoning, in a great majority of cases the poisonous substances are formed by putrefactive changes. In many cases it is probable that decomposition begins after the can has been opened by the consumer; in others the canning is imperfectly done, and putrefaction is far advanced before the food reaches the consumer. In still other instances the meat may have been taken from diseased animals, or it may have undergone putrefactive changes before the canning. It should always be remembered that canned meat is especially liable to putrefactive changes after the can has been opened, and when the contents of the open can are not consumed at once the remainder should be kept in a cold place or should be thrown away. People are especially careless on this point. While every one knows that fresh meat should be kept in a cold place during the summer, an open can of meat is often allowed to stand at summer temperature and its contents eaten hours after the can has been opened. This is not safe, and has caused several outbreaks of meat poisoning that have come under the observation of the writer.

Milk Poisoning.—In discussing this form of food poisoning we will exclude any consideration of the distribution of the specific infectious diseases through milk as the carrier of the infection, and will confine ourselves to that form of milk poisoning which is due to infection with nonspecific, poison-producing germs. Infants are highly susceptible to the action of the galactotoxicons (milk poisons). There can no longer be any doubt that these poisons are largely responsible for much of the

infantile mortality which is alarmingly high in all parts of the world. It has been positively shown that the summer diarrhœa of infancy is due to milk poisoning. The diarrhœas prevalent among infants during the summer months are not due to a specific germ, but there are many bacteria that grow rapidly in milk and form poisons which induce vomiting and purging, and may cause death. These diseases occur almost exclusively among children artificially fed. It is true that there are differences in chemical composition between the milk of woman and that of the cow, but these variations in percentage of proteids, fats, and carbohydrates are of less importance than the infection of milk with harmful bacteria. The child that takes its food exclusively from the breast of a healthy mother obtains a food that is free from poisonous bacteria, while the bottle-fed child may take into its body with its food a great number and variety of germs, some of which may be quite deadly in their effects. The diarrhœas of infancy are practically confined to the hot months, because a high temperature is essential to the growth and wide distribution of the poison-producing bacteria. Furthermore, during the summer time these bacteria grow abunddantly in all kinds of filth. Within recent years the medical profession has so urgently called attention to the danger of infected milk that there has been a great improvement in the care of this article of diet, but that there is yet room for more scientific and thorough work in this direction must be granted. The sterilization and Pasteurization of milk have doubtless saved the lives of many children, but every intelligent physician knows that even the most careful mother or nurse often fails to secure a milk that is altogether safe.

It is true that milk often contains germs the spores of which are not destroyed by the ordinary methods of sterilization and Pasteurization. However, these germs are not the most dangerous ones found in milk. Moreover, every mother and nurse should remember that in the preparation of sterilized milk for the child it is not only necessary to heat the milk, but, after it has been heated to a temperature sufficiently high and sufficiently prolonged, the milk must subsequently be kept at a low temperature until the child is ready to take it, when it may be warmed. It should be borne in mind that the subsequent cool-

ing of the milk and keeping it at a low temperature is a necessary feature in the preparation of it as a food for the infant.

Cheese Poisoning.—Under this heading we shall include the ill effects that may follow the eating of not only cheese but other milk products, such as ice cream, cream custard, cream puffs, etc. Any poison formed in milk may exist in the varions milk products, and it is impossible to draw any sharp line of distinction between milk poisoning and cheese poisoning. However, the distinction is greater than is at first apparent. Under the head of milk poisoning we have called especial attention to those substances formed in milk to which children are particularly susceptible, while in cheese and other milk products there are formed poisonous substances against which age does not give immunity. Since milk is practically the sole food during the first year or eighteen months of life, the effect of its poisons upon infants is of the greatest importance ; on the other hand, milk products are seldom taken by the infant, but are frequent articles of diet in after life.

In 1884 the writer succeeded in isolating from poisonous cheese a highly active basic substance, to which he gave the name *tyrotoxicon.* The symptoms produced by this poison are quite marked, but differ in degree according to the amount of the poison taken. At first there is dryness of the mouth, followed by constriction of the fauces, then nausea, vomiting and purging. The first vomited matter consists of food, then it becomes watery and is frequently stained with blood. The stools are at first semisolid, and then are watery and serous. The heart is depressed, the pulse becomes weak and irregular, and in severe cases the face appears cyanotic. There may be dilatation of the pupil, but this is not seen in all. The most dangerous cases are those in which the vomiting is slight and soon ceases altogether, and the bowels are constipated from the beginning. Such cases as these require prompt and energetic treatment. The stomach and bowels should be thoroughly irrigated in order to remove the poison, and the action of the heart must be sustained.

At one time the writer believed that tyrotoxicon was the active agent in all samples of poisonous cheese, but more extended experimentation has convinced him that this is not the

case. Indeed, this poison is rarely found, while the number of poisons in harmful cheese is no doubt considerable. There are numerous poisonous albumins found in cheese and other milk products. While all of these are gastro-intestinal irritants, they differ considerably in other respects.

In 1895 the writer and Perkins made a prolonged study of a bacillus found in cheese which had poisoned fifty people. Chemically the poison produced by this germ is distinguished from tyrotoxicon by the fact that it is not removed from alkaline solution with ether. Physiologically, the new poison has a more pronounced effect on the heart, in which it resembles muscarin or neurin more closely than it does tyrotoxicon. Pathologically, the two poisons are unlike, inasmuch as the new poison induces marked congestion of the tissues about the point of injection when used upon animals hypodermically. Furthermore, the intestinal constrictions which are so uniformly observed in animals poisoned by tyrotoxicon was not once seen in our work with this new poison, although it was carefully looked for in all our experiments.

In 1898 the writer, with McClymonds, examined samples of cheese from more than sixty manufacturers in this country and in Europe. In all samples of ordinary American green cheese poisonous germs were found in greater or less abundance. These germs resemble very closely the colon bacillus, and most likely their presence in the milk is to be accounted for by contamination with bits of fæcal matter from the cow. It is more than probable that the manufacture of cheese is yet in its infancy, and we need some one to do for this industry what Pasteur did for the manufacture of beer. At present the flavor of a given cheese depends upon the bacteria and moulds which accidently get into it. The time will probably come when all milk used for the manufacture of cheese will be sterilized, and then selected moulds and bacteria will be sown in it. In this way the flavor and value of a cheese will be determined with scientific accuracy, and will not be left to accident.

Canned Foods.—As has been stated, the increased consumption of preserved foods is accountable for a great proportion of the cases of food poisoning. The preparation of canned foods involves the application of scientific principles, and since this

work is done by men wholly ignorant of science it is quite remarkable that harmful effects do not manifest themselves more frequently than they do. Every can of food which is not thoroughly sterilized may become a source of danger to health and even to life. It may be of interest for us to study briefly the methods ordinarily resorted to in the preparation of canned foods. With most substances the food is cooked before being put into the can. This is especially true of meats of various kinds. Thorough cooking necessarily leads to the complete sterilization of the food ; but after this, it must be transferred to the can, and the can must be properly closed. With the handling necessary in canning the food, germs are likely to be introduced. Moreover, it is possible that the preliminary cooking is not thoroughly done and complete sterilization is not reached. The empty can should be sterilized. If one wishes to understand the *modus operandi* of canning foods, let him take up a round can of any fruit, vegetable or meat and examine the bottom of the can, which is in reality the top during the process of canning and until the label is put on. The food is introduced through the circular opening in this end, now closed by a piece which can be seen to be soldered on. After the food has been introduced through this opening the can and contents are heated either in a water bath or by means of steam. The opening through which the food was introduced is now closed by a circular cap of suitable size, which is soldered in position.

This cap has near its centre a "prick-hole" through which the steam continues to escape. This "prick-hole" is then closed with solder, and the closed can again heated in the water bath or with steam. If the can "blows" (if the ends of the can become convex) during this last heating the "prick-hole" is again punctured and the heated air allowed to escape, after which the "prick-hole" is again closed. Cans thus prepared should be allowed to stand in a warm chamber for four or five days. If the contents have not been thoroughly sterilized gases will be evolved during this time, or the can will "blow" and the contents should be discarded. Unscrupulous manufacturers take cans which have "blown," prick them to allow the escape of the contained gases, and then resterilize the cans with their

contents, close them again, and put them on the market. These "blowholes" may be made in either end of the can, or they may be made in the sides of the can, where they are subsequently covered with the label. Of course, it does not necessarily follow that if a can has "blown" and been subsequently resterilized its contents will prove poisonous, but it is not safe to eat the contents of such cans. Reputable manufacturers discard all "blown" cans.

Nearly all canned jellies sold in this country are made from apples. The apples are boiled with a preparation sold under the trade name "tartarine." This consists of either dilute hydrochloric or sulphuric acid. Samples examined by the writer have invariably been found to consist of dilute hydrochloric acid. The jelly thus formed by the action of the dilute acid upon the apple is converted into quince, pear, pineapple, or any other fruit that the pleasure of the manufacturer may choose by the addition of artificial flavoring agents. There is no reason for believing that the jellies thus prepared are harmful to health.

Canned fruits occasionally contain salicylic acid in some form. There has been considerable discussion among sanitarians as to whether or not the use of this preservative is admissible. Serious poisoning with canned fruits is very rare. However, there can be but little doubt that many minor digestive disturbances are caused by acids formed in these foods. There has been much apprehension concerning the possibility of poisoning resulting from the soluble salts of tin formed by the action of fruit acids upon the can. The writer believes that anxiety on this point is unnecessary, and he has failed to find any positive evidence of poisoning resulting from this cause.

There are two kinds of condensed milk sold in cans. These are known as condensed milk "with" and "without" sugar. In the preparation of the first-mentioned kind a large amount of cane sugar is added to condensed milk, and this acting as a preservative renders the preparation and successful handling of this article of food comparatively easy. On the other hand, condensed milk to which sugar has not been added is very liable to decomposition, and great care must be used in its prepar-

ation. The writer has seen several cases of severe poisoning that have resulted from decomposed canned milk. Any of the galactotoxicons (milk poisons) may be formed in this milk. In these instances the cans were "blown," both ends being convex.

One of the most important sanitary questions in which we are concerned to-day is that pertaining to the subject of canned meats. It is undoubtedly true that unscrupulous manufacturers are putting upon the market articles of this kind of food which no decent man knowingly would eat, and which are undoubtedly harmful to all.

The knowledge gained by investigations in chemical and bacteriological science have enabled the unscrupulous to take putrid liver and other disgusting substances and present them in such a form that the most fastidious palate would not recognize their origin. In this way the flesh from diseased animals and that which has undergone putrefactive changes may be doctored up and sold as reputable articles of diet. The writer does not believe that this practice is largely resorted to in this country, but that questionable preservatives have been used to some extent has been amply demonstrated by the testimony of the manufacturers of these article themselves, given before the Senate committee now investigating the question of food and food adulterations. It is certainly true that most of the adulterations used in our foods are not injurious to health, but are fraudulent in a pecuniary sense; but when the flesh of diseased animals and substances which have undergone putrefactive decomposition can be doctored up and preserved by the addition of such agents as formaldehyde, it is time that the public should demand some restrictive measures.

THE TECHNICAL TRAINING OF OFFICERS IN GARRISON ARTILLERY.

By Captain A. W. PACK-BERESFORD, R. F. A.

"Duncan" Commended Essay, 1899.

(*From Proceedings of the Royal Artillery Institution.*)

"When the strong man armed keepeth his palace, his goods are in peace."

BEFORE suggesting a new system of training for the garrison artillery, it is well to consider whether the present system is a good one, and then to see how it can be bettered. At once we are met by a difficulty.

There does not appear to be any logical system of training and it is a matter of accident whether the officers of the garrison artillery get any training at all, beyond the general knowledge which they are bound to pick up in their service companies. When the young officers leave the Royal Military Academy it is a mere chance what happens to them. Some go to the field artillery, and the others are taken apparently at random and scattered throughout the world.

A few are quartered at home. Some go to the large fortresses at Gibraltar and Malta; others are sent out to small colonial stations. They go out just at an age when they are most susceptible to the influence of their surroundings, and the two or three years which follow have an immense effect in forming their characters and determining their future.

It is not at all an unusual thing to find a company containing nothing but 2d lieutenants, possibly without a captain. They have to try as well as they can to sift right methods from wrong and to discover the ways of the service. Perhaps they work out their own salvation, it is more likely that they do not.

Sometimes they are sent to a station in an out-of-the-way part of the world, and the first thing they are told is that the guns there are all obsolete. How can this have an effect other than prejudicial? Who can blame the young officer who says, "This is no place for me. I will serve in a branch of the service which is not obsolete."

To turn to the subject of courses. The routine at present

adopted is to send to some command an order to detail an officer for a course; position finding, firemaster or whatever it may be. Again there is a dip in the lucky bag; an officer whose tastes lie in the direction of chemistry, etc., and who wishes to be a firemaster, is made into a position finder; the exigencies of the service demand it. Having gone through his course, he is ordered to take up a position-finding appointment; he has to leave the company he is fond of and wishes to serve in and devote himself to a minor branch of his profession which is one he does not care for.

No doubt he does his duty as well as he can, but how is it possible for his heart to be in it?

It must be bad for an officer of four or five years service, to be put in a position where he loses all touch of regimental duty; where he never goes to a court-martial, turns out a guard, or visits a dinner. A subaltern who has done five or six years of this semi-staff work, and is then sent to a company as a junior captain, cannot expect to do it justice and must on all points of minor administration and interior economy be in the hands of his subordinates.

Again in stations where the regiment is short-handed it is no unusual thing to find one subaltern doing all the work of the place, perhaps moving heavy guns, a work requiring nerve and skill. He gets no extra pay, while another subaltern who happens to be an instructor in range-finding specialist is drawing an extra half-crown a day and he perhaps does less work.

This cannot fail to create ill-feeling and discontent.

We cannot help the guns being obsolete and we have to take such men as we can get, and make the best of them; but the young officer is there ready to hand, and by putting him through a course of systematic training and carrying out a small amount of reorganization which is dependent on it, the efficiency of the garrison artillery could be largely increased and the service in it very much popularized.

It now remains to show how this is to be done.

When we consider the case of an officer who enters the garrison artillery, and intends to stay in it, we must realize that he is entering a branch of the service at least as intricate and technical as the Royal Engineers, and must be prepared to

spend a certain amount of time in fitting him for it, before he is sent out as the finished article.

The Engineers spend two years at Chatham getting this preliminary polish but for the garrison gunner only one year would be necessary, and that year need not all be taken at once.

It is impossible to make a man master of all trades, and yet there are very many matters which it is essential for a gunner to know.

The subjects with which he has to deal admit of division into two classes. First, general subjects which he must know. Second, special subjects which it is desirable that he should know.

The young officer on joining should have a six months' course in the general subjects; he should then be sent to a company for two years and after he had time to see in what direction his tastes lay, he should receive a further six months' course in a subject which he would himself select.

The subjects which are essential will readily suggest themselves:

Drill and knowledge of imparting it.

Elementary knowledge of interior economy, military law, siege works, guns, ammunition, range finding and laying.

The special subjects can as a matter of convenience, be divided into five classes:

(1) Position finding, electricity and telephony.
(2) Siege artillery and theory of gunnery.
(3) Steam, mechanics and moving heavy guns.
(4) Chemistry and ammunition.
(5) Identification of ships and theory of coast defense.

To go into matters more fully. The first six months' course would come directly after the course at the Academy. During this course the young officer would learn to drill with all natures of guns and further he would be made to drill his comrades, and he would be taught how to impart instruction. This is a subject which is at present totally neglected.

He would be lectured on the "Queen's Regulations," interior economy and military law. The lectures would be few and given chiefly to direct his reading, and for theoretical knowledge in these subjects he would have to read, and be examined

in what he had read at the end of the course. Practical knowledge can, however, only come with experience.

He should see heavy guns mounted and dismounted under fairly easy circumstances and favorable surroundings.

He should handle siege-guns and be sent on range to see and record the results of their fire.

The knowledge of the composition and handling of ammunition is a thing which is taught at the Academy and very little extra would be needed.

He should be taught the theory and practice of depression range-finding so as to be able to take ranges, but not to go deeply into the subject.

He should be taught how to lay and how to instruct and examine a squad of layers.

After six months he should be made to pass an examination and his armament pay would depend on his success. At the end of the course we should have an officer who would be of use in any company; one who could take a squad and instruct it; who would make out a satisfactory report if sent on range. One who would have an idea of what punishment a man ought to get for various classes of offenses. One who could be trusted to take ranges during practice and who could examine the layers at their weekly test.

Such an officer any major would be glad to have sent to him.

He should then be sent to join a service company at home, Malta or Gibraltar and should serve in it for two years, taking things as they came and have his share of leave. It would be preferable to have all the young officers at home, but there are not sufficient companies to receive them; the balance might be sent to Malta or Gibraltar. There they would be within easy reach of England so as to return for their second course, and there are so many companies in these fortresses, that it would not be necessary to send more than one young officer to each company, and to have one young officer in them would not alter their conditions of service.

When he had two years and six months service he should be brought back and put through a specialist course lasting six months. The special subjects as has already been stated would be five.

First.—Position finding, electricity and telephony.

This would be very much the same as the position-finding course at present, but more thorough. The specialist would be made a good electrician with practical, as well as theoretical knowledge. He would be taught the care and conduct of search-lights, which is at present left in the hands of the Engineers. He should, when he has finished this course, be not merely a theorist, but a good practical electrician.

Secondly.—Steam mechanics and movement of heavy guns.

This only includes steam as applied to gun-mountings. The specialist in this class would be given a thorough knowledge of all mountings likely to be met with. His knowledge should be so practical, that he could put in order any small defect or jam which might occur at practice, without being dependent on the Inspector of Ordnance Machinery. He should have a thorough practical knowledge of heavy shifts, moving guns from barges into and out of casemates in cramped positions and under unfavorable circumstances. This course would take the place of the present Steam Mechanics course.

Thirdly.—Siege artillery and theoretical gunnery.

In this course the specialist would be taught the placing and forming of siege batteries. Effect of shells on earthwork and masonry. Penetration of armor. Effect on range and trajectory of altering gravimetric density, working out probabilities, checking and criticising range reports. This course would be a modification of the long course and would take its place.

Fourthly.—Chemistry and ammunition.

This course would include the effect of climate on powder, fuses, etc. The examination of ammunition and a thorough knowledge of all laboratory operations. It would take the place of the present firemaster's course.

Fifthly.—We come to a suggested new departure.

Specialists are urgently required for the identification of ships and theoretical coast defense. These are subjects which at present a garrison artilleryman is supposed to know intuitively without having been taught them.

The course would include, first, lectures and instruction on all the various schemes for defending our ports and coaling

stations, pointing out the theory, the good points and the defects. Second, lectures on the different classes of ships in our own and other navies, and the means of identifying them.

Lastly, the officers of the course would be sent to sea in a man-of-war for three months. They would see all the Mediterranean, Home and Channel defenses from the sea side and get an idea under what sort of conditions ships live and fight; what sort of things they can, and what they cannot do.

When the officer had finished whichever of these courses he might take up and become a specialist, he would join a company abroad. He should by this time be an officer whose opinion would carry weight on his own subject among all ranks, and who would be none the less a good garrison gunner.

Now let us glance at the career of a young officer who selects to go into the garrison artillery under the proposed new régime.

After he leaves the Royal Military Academy he would go straight to his six months' course, he would not have lost the habit of working, and he would find himself associated with others who have to work as he does.

He would be kept at work for about six hours a day; and at his age he ought to be able to absorb a great deal of knowledge in six months. He would look forward to his examination at the end of six months and would work in his spare time for it, as he would know if he did not pass he would not get his armament pay.

At the end of the course he would go to his company at home, or at Malta or Gibraltar; as has been said before, he would be no raw gentleman cadet who does not know how to give a word of command, but an officer of six months' standing, who can instruct at drill, deal with minor offenses, and who has picked up a good smattering of the customs of the service.

The next two years he would spend with his company; he would know he will one day have to become a specialist and he would gradually see where his tastes lay. By the end of the first year he would have made up his mind what specialty he would take up, and at the end of the second year he would have given himself a good grounding in his subject and would be in a ripe condition to undergo his six months' course.

At the end of his second year (when he has two and a half years' service) his connection with his company would cease, and he would be seconded for his specialist course.

He would go back to Woolwich and undergo one of the five courses which have been described, and at the end of three years we would have the finished article; a 1st lieutenant with a good general knowledge of his profession and a specialist in one branch of it. He would be sent to a company abroad. His major would be glad to see him, he would enter at once on his duties; if he were left to himself he would by that time have learned right from wrong, and there would be no question of his needing licking into shape and not getting it. There he may be left for the present and we will turn to discuss the advantages of the system.

First.—The rough edge would be taken off a gentleman cadet before he was sent to his company, where there may be no opportunity for doing so.

Second.—It will be easier to instruct the young officer. At present when a young officer first joins, he has to undergo a certain amount of drill and instruction, but he does it alone, whilst his brother officers are enjoying themselves elsewhere. In his heart he probably wishes he were with them. It would in nearly all places be hard to get a young officer to do six hours' drill a day and to work in his spare time as well, but by having a course with an examination at the end of it, this matter is quite easy.

Third.—The present unsound practice of sending young officers abroad haphazard would be done away with. A gunner is not allowed to leave England until he is twenty; why should an officer be less well cared for? This is not only a question of health. The first three years' service are very important ones, during that time habits are formed and characters determined, perhaps for life; surely it is important that a young officer should be carefully watched and not allowed to learn undesirable foreign habits and customs before he has seen a little of his own country.

Fourth.—The specialists who are at present not borne on the strength of companies would become extinct, or rather would be absorbed into the companies. In case of an attack

every one would fall into his place and help to fight the batteries.

The firemaster would have seen his ammunition is right in peace, and in war he would have to show that he knew how to use it. The instructor in range finding would have trained his men in peace, in war he would have to remember he is a gunner and his schoolmaster vocation must for the time be put on one side. This is very necessary, for if you take a station where there is only one position-finding specialist and three forts with instruments, he cannot be in more than one place at the same time, and in war time he must depend on the men he has trained and not on himself. So he would become a gun-group commander ready to help at the position finder, if ordered to do so.

Fifth.—It is a matter of common note that there are unrecognized and unpaid specialists in the garrison artillery at present. If heavy armament work has to be done, the commanding officer is told that one of his officers is good at this work and fond of it. If a calculation has to be made or plans drawn up, another officer is pointed out as having taken up this line. These are true specialists and only want encouraging and helping on in their own line to be of the utmost value.

Sixth.—At present, if heavy armament work has to be done, it has to be carried out by an officer who has a partially trained aptitude in this line, or failing him, by a sergeant who has been through the long course. In future the armament specialists would be summoned and the work properly done.

Seventh.—The "garrison artillery drill" directs that the fire commander shall identify the vessels approaching. It admits that "the enemy will do all in his power to disguise his vessels" and yet it takes the optimistic view that "he (the fire commander) should soon be able to master this" (*i. e.*, the identification of ships), "or he should choose an officer who has shown an aptitude." The new course will provide such an officer and this important matter will no longer be left to chance.

Eighth.—If a question of coast defense is being discussed, at present the senior officer Royal Artillery is summoned. He may have travelled and seen coast defenses elsewhere, his

opinion may be of the utmost value; but if he has served inland perhaps in other branches of the service, his opinion cannot carry weight; whereas a properly trained junior officer could put forward the scientific theoretical aspect of the question and leave it to be settled by those senior to him, as to how the principles could be best carried out.

This is a most important point, for coast defense is a subject involving the expenditure of large sums of money, and mistakes once made cannot be readily rectified.

It will now be well to discuss the alterations in organization, which are dependent on the introduction of a new system.

At present there is a great disinclination among the senior ranks to go abroad, and a company at home is a thing to be sought after and paid for.

The companies at home and abroad are regarded as being on much the same footing and the same work is expected from each. This is the result of a failure to recognize the totally different conditions under which they serve. The difference must exist, and instead of trying to gloss over the fact of our home garrison companies being composed of raw soldiers and our foreign companies of trained men, it is better to emphasize the difference and to legislate for it. Assuming the scheme which has been suggested as being carried out, the difference will be still more strongly marked.

In a company at home there will be one senior subaltern and one or two young officers and a number of young soldiers, the whole year would be spent in training these officers and men into as high an efficiency as can be attained. Until the recruits can be enlisted in large batches it is hard to lay down a systematic scheme for their instruction.

The major's lot would not be an enviable one, he would be commanding a sort of glorified depot and trying to make the best of raw materials. But should any emergency arise the companies at a few days' notice can be stiffened into any degree of serviceability that is required, by the addition of reserve men, and if there is a paucity of officers, it can be made good at twenty-four hours' notice. The company would have a scrambling time and probably would not be very smart, but if it were wanted for service it would not be found wanting.

To turn now to companies on foreign service, a totally different problem presents itself. The men are all trained and of the subalterns, none would have less than three years' service. The machine would be there to hand and the question would be how to make it most efficient. The following systematic course is suggested:

Two points must be recognized; that on foreign service, officers want leave, and that trained men do not require to be kept in the collar all the year round.

The year would be rigidly divided into two periods, the drill season and the leave season.

During the drill season every officer should be present.

During the leave season as few officers as it is possible to carry on the work with.

To take a company of normal strength, during the leave season, the major or captain and one subaltern should amply suffice.

In this connection it must be pointed out that the disability companies suffer from of bearing officers on their strength who are at the Staff College or going through the long course, ought to be for once and for ever abolished.

To consider the year's work at a foreign station with a hot summer, April to September would be the leave season.

By the first of October all the officers would be back, all having had their share of leave, glad to see each other again and anxious to commence work.

In October the first courses would begin; they would be absolutely under the subalterns, supervised by the major. Each of them would make out his own scheme, and at the end of his course, his section would be inspected and he would be judged by its efficiency. These courses would go on during October and November.

On the first of December the major would take over his company; which should be by that time thoroughly exercised in drill. During December and January he would work his men up and at the end of January he would do his competitive practice.

February and March would be the colonel's months. They would be devoted to working out schemes of coast defense,

mobilizing, manning all forts, and working intelligently on the broad base of solid drill which would have been prepared.

After March the drill season would be over and during the summer, things would be let down easy. Classes would be formed for specialists, and armament work would be carried out.

Now during the whole year the only time when the specialist would have to keep his work in abeyance, would be when he is instructing his section for their first course, and when he is on leave. While the other subaltern courses are going on, he could devote himself entirely to it, and while the major's and colonel's courses are going forward he would rarely be required for more than two or three hours a day, twice or three times a week. In the summer he would hold courses in his specialty and this he could easily arrange to fit in with his company work.

During the drill season, lectures would be given to the whole garrison, each officer lecturing on the subjects which he had made his own. These lectures would be of interest, not only to the officers and men of the Royal Artillery, but those about the navies of foreign countries, would attract officers of other branches of the service.

To refer now to the economical aspect of the new system. No officer would receive his armament pay until he had passed a satisfactory examination at the end of his first or general course. If he did not pass satisfactorily, his pay would be withheld till he did. This would be an incentive to young officers to work, and as they probably join the army with a sort of "boy out of school" feeling it would save a great deal of trouble. The present specialists would be absorbed into the regiment, and their pay would be saved.

When the second (or specialist) course of six months was over, the officers would be classed. All classed as very good, would receive an extra shilling a day. It is surely not much to ask an officer to be very good in a subject which he is allowed to choose—90 per cent. should come up to this standard. The extra expense of this shilling would be more than covered by the saving of the specialist pay.

There are in the February issue of the Royal Artillery Regimental List, nine officers shown as instructors in range finding,

three are shown as instructors in gunnery. They are paid at the rate of 11/4 each. By absorbing them into the regiment a saving of 136 shillings a day would be effected. There are now some 130 1st lieutenants serving in the garrison artillery, and the amount saved would provide each of these with an extra shilling. The cost of the new courses would be covered to a great extent by the abolition of the old ones.

There are also a few reforms with regard to the management of the men which must be referred to as they are bound up with the introduction of systematic management. One of the evils of the garrison artillery is the way the men are employed, and their major cannot touch them. It is a rare, it would almost be fair to say, an unheard of thing, for a major to see his whole company on parade except at inspections. This must be wrong. A hard and fast rule should be introduced that every employed man, signaller and servant, mess butler and artificer, should attend parade once a week. A parade rarely lasts more than two or three hours, and to ask a man who is paid as a soldier to devote two hours a week to his profession is surely not much. Every sort of difficulty would no doubt be made to this reform, but if an order were issued, things would accommodate themselves to it.

Again when a man is trained and dismissed he should not be sent to standing gun drill, simply in order to do it. If he is slack or does not know it let him have drill *ad nauseam* till he does. But if he does know his drill, he should be put to do something else. It would be infinitely better to have a man cultivating his garden of a morning than to have him standing behind a 10-inch gun wondering when his drill will be over and he can get away to his canteen. When a man is a trained gunner, he should be taken once or twice a week to a big parade to show him that he is part of the machine; and on the other days, let him be practiced in his specialty, whatever it may be, signalling, laying or range finding, and in the time which is left he should be taught a trade, or to till the soil, so as to make himself a good laborer, one who can, when he leaves the service, earn his living with his spade, or in some other way. A trained gunner who attends two parades a week, who has his hands hard, and who is not afraid of a day's work, is a

far better soldier than a man who has been marked up in the drill record as "present" every day at standing gun drill.

With trained men five working days are ample in the week, and Thursday may well be set aside as a day of leisure. Officers and men should be encouraged to develop their individualities and tastes, and one day in the week given up to fishing, shooting, boating, football or cricket, is not by any means a day lost.

It will be well to refer to what appear to be objections to the system which is proposed. First, a major at home would not care to have a subaltern coming to him for two years, and would not take pains with him, knowing he was to lose him as soon as he became valuable.

At present there is undoubtedly, as already stated, a great desire on the part of senior officers to serve at home, and if a man has the good fortune to serve at home, he must put up with the counter-balancing hardships. If a major was ordered abroad he would at least have the satisfaction of knowing that he had reliable officers and a trained company to work with.

Second, that the young officers crowding into the home companies would reduce their efficiency. The young officers must be somewhere and at present in companies abroad by reason of sickness, leave and transfers, it often happens that the command of a company is thrown on the shoulders of an officer of less than three years' service, and this state of things cannot be rectified in less than two months. At home, should it occur, a few days at most, will set it right.

Third, that a man cannot do two things at once, *i. e.*, be a specialist and a company officer at the same time. This objection would never be put forward by a company officer and could not be upheld by anyone. If the specialist were taken for two or three hours in the morning for his company work, he would have all the rest of the day for his special work and classes; and he would have to learn to apportion his time so as to make things fit in.

An objection might be put forward to the systematic training of companies, that if the enemy attacked at the beginning of the systematic course, the company would not be in a state to meet him. The answer is, that it would at least be as well off as it is now, and war is not declared at a moment's notice.

Before summing up it will be well to epitomize the advantages of the proposed new scheme:

Every officer would have six months' solid instruction put into him before he joins.

No young officers would be sent abroad to lose their health and pick up bad habits.

Every officer would be encouraged to make himself a specialist in his own subject.

Extra pay would be put in the reach of every subaltern.

The unrecognized specialists of to-day, would be recognized and encouraged.

The specialist of to-day would be made into a more useful and efficient officer.

A company abroad would be made a thing to be sought after rather than avoided.

There would be no paper officers and consequently plenty of leave for everybody.

There would be systematic courses of instruction for companies.

Specialists would be introduced for identifying ships.

It will be noticed that all these things tend to increase the pay and better the position of the subaltern. It is when a man is a subaltern, that his character is formed, and it is during his first few years that he has the hardest work to keep his head above water financially, and if the service is made attractive to subalterns the other ranks fill up in time. A captain is of less importance; his character is formed and his pay is higher.

All these advantages could not fail to popularize the garrison artillery, and in many ways this would mean that the efficiency would be increased; as if a service is popular, a good class of man is attracted to it. There are a few other matters which hardly come into the scope of this essay, but which it will not be amiss to refer to.

All arsenal appointments, adjutants of militia and volunteers, would be given to captains or subalterns of not less than nine years' service. The mountain artillery would be reserved (as indeed it is now) for officers of the garrison artillery, and their claims would be considered whether serving at home, in the colonies, or elsewhere. Mountain battery officers would be

mainly recruited from India, as the service in the land forts there is less attractive and less up-to-date than service on the sea fronts, but everyone should have a chance, and because a man is sent, perhaps against his will, to the West Indies, he should not be cut off from service in a mountain battery, a service for which, perhaps he is well fitted. Again, the practice of shipping off slack or undesirable officers to out-of-the-way stations, must be very wrong. Surely such a man should be kept under the eye of authority at a big station, till he improves or leaves the service.

The position of the garrison artillery is improving every day. There was a day when the corps of Royal Engineers was so little thought of that the men at the bottom of the term leaving the Academy were ordered to go into it. That day has passed and now we see the sappers chosen from the top of every term. There was a day when the garrison artillery was a despised and neglected service, but that day has passed.

The day is in the near future when, with the garrison artillery as with the engineers, the increased pay will bring home influence to bear, and commissions in the garrison artillery will be eagerly sought for and given to those at the top of the list. The officer who passes through the garrison to the field artillery will cease to exist.

Before closing, let us regard the position which the garrison artillery occupies with regard to the rest of the army, and it will be seen that it is of vital importance that anything which tends to increase its efficiency should be done, and done at once. It is an accepted fact that the navy is the first line in the defense of the empire. Articles are written daily to impress on the public that we are dependent on it for our very existence, and that defeat at sea means starvation to the British Islands within a few weeks.

Every European complication calls forth more ships, their equipment is hurried on, and improvements rapidly introduced. It was a fact commented on by all, that at the 1897 Jubilee Review, practically all the ships had been built since 1887. But all these ships are powerless without coal and of very evanescent use without dockyards to put into and arsenals to refit at. These coaling stations, dockyards and arsenals, depend on

the garrison artillery for their defense. It is therefore a fair thing to say that the garrison artillery, if not part of the first line is at least the very front rank of the second line. As such its requirements and efficiency should take precedence of all other branches of the army.

It is no doubt an excellent thing to train up the cavalry and infantry and have them ready to start for a small expedition, or prepared to take a very minor part in some European war. But the garrison artillery stands on an absolutely different footing; its efficiency concerns the vital interests of our empire as it is; and with the navy, on it depends the fact of our very existence.

Its rôle is not showy. The German Emperor comes to Aldershot and sees nothing of it. The foreign ambassadors crowd to our great naval reviews and scarcely realize that it exists; but in every corner of the earth, from Hong Kong to Mauritius, from Bermuda to the Thames, the garrison artillery stands armed and waiting, guarding the dockyards and arsenals, the coal-yards and harbors, and "when the strong man armed keepeth his palace his goods are in peace."

Military Notes.

PRECEDENCE OF RANK.

QUITE a flutter has been created in Army and Navy circles at Washington, as to whether the Admiral of the Navy or the Major-General commanding the Army shall take precedence in public functions. While there is no doubting the fact that Admiral Dewey ranks Major-General Miles, the claim is made that in public matters, such as President's official receptions, etc., the War Department ranks the Navy, and therefore the head of the Army should take precedence, but in social affairs the Admiral should lead.

Mrs. Miles has for many years been the leading lady next to the Cabinet officers' wives in all social matters at the National capital, and we fancy it will be hard for her to relinquish her enviable position. However, the matter rests with the President to decide, and we presume that before the New Year Reception takes place the gathering clouds will have passed away.

CUBA'S GOVERNOR-GENERAL.

"General Leonard Wood has been summoned to Washington from Santiago, and professional guessers are busying themselves as to the object of his recall. It is said on one hand that the President purposes appointing him civil governor of Cuba, while others think he was called home in order to give his opinion as to the advisability of instituting a civil government in the island at this time. Rumor also had it that he was to be rewarded by being appointed to succeed Dr. Sternberg as surgeon-general when the latter is retired by law. General Wood has, however, requested the newspapers to deny this story. He says that he has, it is true, served in the medical corps of the army, but has no desire to return to that branch of the ser-

vice, and under no circumstances will he do so. The duties are pleasant enough, he says, but he has found another field more to his liking. Hereafter, he says, he will remain in the line of the army, and he does not care for a staff position."—*Medical Record.*

General Wood has, since the above was printed, been made a Major-General of Volunteers and appointed Governor-General of Cuba. The prospect of his being appointed a Brigadier-General in the Regular Army seems to be good, but it has much opposition at Washington.

TRANSPORT SCANDALS IN THE PACIFIC.

Those who remember the deplorable lack of medical service on several of the army transports bringing the sick and wounded to this port from Cuba in the summer of 1898, and the lame excuses offered by those who should have been held accountable for the occurrence, will not be surprised to learn of similar happenings on transports from the Philippines. According to the San Francisco *Examiner*, a most sensational report by a military board of inquiry has just been forwarded to Washington from the headquarters of Major-General Shafter. The document contains the severest kind of criticism of the methods employed by officers in charge of the sick soldiers who returned from the Philippines on the transports *Tartar* and *Newport* on October 10th. Upon the surgeon of the Twentieth Kansas Volunteers, who came back on the *Tartar*, the heaviest censure is laid. The colonel of the same regiment, who commanded the ship, is indirectly referred to, and many other officers receive a hard measure of criticism. The board of inquiry was appointed by General Shafter two weeks ago, at the suggestion of Colonel Alfred C. Girard, chief surgeon in the general hospital at the Presidio. Colonel Girard's desire for an investigation was occasioned by the deplorable condition in which he found the sick men from the transports *Tartar* and *Newport*. There are about forty of them, and nearly all were suffering from dysentery. Three men who came on those transports died a few days after their arrival.—*Medical Record.*

HORSE PARADE ON TRANSPORTS.

The English transport *Mohawk* on her way to the Cape with a cavalry regiment aboard called at Las Palmas and reported that they held a horse parade on deck each day. The horses are walked up and down the deck without the slightest trouble. The agent of the Atlantic Transport Line to which the *Mohawk* belongs facetiously writes "that by the time the steamer reaches the Cape he expects to hear of the horses having been used for reefing the topsails and checking the captain's observations."—*Nautical Gazette.*

THE MOST SANGUINARY BATTLES OF THE PRESENT CENTURY.

The despatch from Lord Methuen to the Queen in reference to the battle at Modder River, in which he is reported to have said that it was the bloodiest one of the century, has occasioned a good deal of amusement in the United States. None of the papers believe that Lord Methuen said any such thing, unless, indeed, he spoke of the loss compared with the number of men engaged. The New York *Sun* makes the apposite remark that "as the number of Boers engaged was only about eight thousand, according to the British reports, and General Methuen is in command of only one division of the British army sent to the Transvaal, no battle between these forces could have been the bloodiest of the century unless the slaughter of both armies was complete." In many of the New York journals a list is given of the bloodiest battles since the commencement of the year 1800. The New York *Sun's* list is as follows: "At the battle of Austerlitz in 1805, the French lost 7000, and the killed and wounded of the allies numbered more than 300. The French losses at Bautzen in 1813 were 13,000, and at Wagram in 1809 they lost 18,000. At the Moscova on the retreat from Moscow they lost 30,000. At the battle of Leipsic in 1813, a three days' battle, the French losses were 65,000. More than 40,000 of the French perished on the field, altogether 80,000 being killed. At Waterloo the British lost 6932, the French 28,850. In the last great attack on Sebastopol the French lost 1646 killed and 4500 wounded, and the English lost 385 killed and 1886 wounded. At Plevna between 18,000 and 20,000

Russians were killed and wounded, the Turkish loss being about 5000 less than the Russians. In the war between Prussia and Austria in 1866 the Prussians lost 9172 and the Austrians 44,314 at Königgrätz. In the Franco-Prussian War, the Germans at Weissenburg-Worth lost 12,914 and the French 5000 in killed and wounded. At Vionville-Mars-la-Tour, the Germans lost 15,799, or twenty-two per cent. of their army, the French loss being equally great. At Gravelotte, St. Privât, the German loss, according to a German authority, was 20,173. Another puts it at 25,000 and the French loss at 19,000.

"In the American Civil War the aggregate losses at the battle of Stone's River were 13,249 on the Federal side and 10,266 on the Confederate side. At Gaines' Mill the North's aggregate loss was 6837 and the South's 8751. At Gettysburg the Union losses in killed were 3070, wounded 14,497, and the Confederates 2592 dead, 12,760 wounded. Chancellorsville, Union dead 1606; wounded 9762; Confederate, 1665 and 9081 respectively."

To this list might be added the battle of Solferino, in which perhaps a larger percentage of combatants was placed *hors de combat* than in any other fight within the century. Fourteen thousand Austrian soldiers were killed or wounded, and about the same number of the allied armies. Again, the battle of Omdurman deserves a place, for although the British troops suffered but slightly, the Dervishes at the lowest computation lost a third of their number.—*Medical Record.*

SURPRISES OF WAR.

It has been said that it is permissible to be defeated, but never to be surprised. At this stage of the Second Transvaal War, it is, however, evident already that from time to time our forces engaged in Natal with the mobile Boers have experienced surprises, which have some day to be explained, when the details of the campaign are accessible to the public. The general contention of the arm-chair critic is therefore sound in the abstract, that what our generals knew of the enemy was little, and was not supplemented by the reconnaissance of cavalry and light troops. Thus in almost every engagement we read of

second or third lines of the enemy's troops arranged in unorthodox curves or echelons, and providing, to a very great extent, surprises for our own people, who have been taught to expect that a defensive position will be reinforced from the rear, while the tactics of the Boers have invariably proved to be a scatter of the advanced line, and a rally in rear of a secondary position. Or, again, at Nicholson's Nek, we lost two battalions because they marched straight to their objective and continued so advancing, when the *raison d'etre* of the primary scheme had ceased to exist. Here it almost appears that orthodoxy in tactics was entirely absent, and that at a critical moment of the history of the war, our soldiers or their local leaders were left to deal with the enemy as though gifted with that same instinctive strategy which makes the subtle Boer what he is, an adept in the art of ambuscades and sudden concentrations, which are only feasible with mounted troops.

These, of course, are merely the deductions from the censored reports open to the public at home, but no explanations will ever remove the conviction of military critics, that with the recklessness of troops trained to underrate their enemy, we have paid dearly for our retrocession in Natal. And the point which we should like to drive home now is, that there is nothing in our tactical books which justifies frontal or flank attacks after imperfect reconnaissance, nor has the lesson ever been inculcated in any accepted work of reference, that reconnaissance can be dispensed with in any phase of offensive warfare. But here we may well remark upon two instructions, which in the training of Salisbury Plain, the Curragh, Aldershot and other military centres are perhaps too dogmatically asserted, and too slavishly followed. These teachings are, that primary orders to be so framed as not to admit of being read as *alternative*, and, that orders so promulgated are to be readily susceptible of alterations, when further information of the enemy's movements is forthcoming. All this is very sound, but when read in the light of the experience we have had of manœuvres at home with the hurried method of developing the attack of a position, it is easy to see how even officers of high standing are apt to be misled in their application of tactics to strange ground and an enemy gifted with extreme mobility within certain

limits. Thus the tendency of officers so trained is very often to issue orders which are either too elaborate or too vague, and also to hurry the first movements of their forces under the impression that if not doing something the whole time they are losing points in the game of war. And the whole question hinges on this important matter of reconnaissance, which if not carried out properly, renders it impossible to issue other than very vague orders except in warfare. Thus in tactical tests of senior officers, so little is told the commander of a mixed force as a rule, that until he has executed a close reconnaissance by means of his cavalry and light troops, he cannot logically issue other than tentative orders of any sort. But by the rules of the game, a commander is compelled to write his orders before he moves a single man, and if much elaborate detail has been given him in the "Idea," he falls into the trap of basing his detailed orders on the workings of another man's mind, those of the compiler of the "General Idea." Now, in our opinion the text-books are right in the theory of leaving the rival tacticians to guess the "Idea" by the actual working of their own light troops. Therefore, no tactical problem need be set at all, for the general idea should be of a strategic nature and adapted to the circumstances of two forces whose light or advanced troops are nearing contact, and whose working should eventually determine the tactical situation. For instance, why limit the troops on the enemy's side to a mere advanced-guard or an outpost line? It is surely the business of the commander of the other side to find this out himself, and to deal out his troops for the occasion as the situation develops. We have before us, as we write, numerous problems set in the field, which, in our opinion, restrict the tactical situations far too narrowly. The result is, that the commander of a small mixed force realizes at once, that he has before him a defined position to attack, or even the sort of force with which he is confronted, and he is tempted to organize his own force at once on a stereotyped plan, with few, if any, variations of a direct advance on a foreseen objective. The consequence is, that it is very rare to witness a change of front, a flank attack, or the checking of a line or echelon, which must often occur on service, and so young tacticians and even general officers are trained very little to deal

with the surprise action of an enterprising foe. At the bottom of this defect is the failure of our military authorities to enforce the practice of continuous exercises, which, if difficult to attain in a country like ours, with large forces, is quite practicable for small forces commanded by officers who are under training for higher commands on service. When the first phases therefore of the military history of the present campaign are eventually published, we shall be surprised if it is not in evidence, that the action of our detached light troops has been to a very great extent neutralized by the neglect of that training which can only be assimilated by progressive and continuous exercises. —*United Service Gazette.*

AN INCREASE IN THE ARMY MEDICAL STAFF.

A bill which has been prepared by Surgeon-General Sternberg will be presented to Congress during its present session. The bill provides for the addition to the corps of four assistant surgeon-generals, with the rank of colonel; ten deputy surgeon-generals, with the rank of lieutenant-colonal; thirty surgeons, with the rank of major, and eighty assistant surgeons, with the rank of first lientenant, who shall have the rank of captain at the expiration of five years of service. Acting assistant surgeons to the number authorized are to be appointed, subject to the usual examination, for a probationary period of six months, during which they will attend the Army Medical School in Washington, at the end of which time, if their standing is good, they are to be commissioned to fill existing vacancies. This probationary service is waived in the case of candidates who have rendered satisfactory service as acting assistant surgeons or as commissioned medical officers in the volunteer army for a period of six months or more. The vacancies occurring in the grades of major, lieutenant-colonel, and colonel will be filled by seniority promotion.—*Medical Record.*

PROMOTION ON RETIREMENT.

A determined effort will be made this winter, on the part of officers of the army who served in the Civil War, to get a bill

passed by Congress retiring them with higher rank than that which they hold on the active list. Major-General Miles, in his annual report, has strongly recommended such a change in the law governing retirements in the army, and it is confidently expected by the officers who would be affected, that little trouble will be had in getting favorable legislation. At the present time, as is pointed out, naval officers who served in the Civil War have a great advantage over their brethren in the army who saw like service, in that they are retired with the next rank higher than that held by them on the active list. There seems to be no good reason why any discrimination should be made. It is certainly to be hoped that the efforts of the officers interested will be crowned with success. Secretary Root has interested himself in the matter and will, it is believed, do all in his power to assist at the proper time. It is also believed that several Congressmen of prominence in army and navy affairs will help towards getting favorable action in Congress.

Senator Foraker and Mr. Moody have introduced bills in the Senate and House respectively, looking to legislation along this line. These two bills are in their main features similar, and are strongly endorsed by the officers in the War Department who are affected by them. General Miles, who so strongly advocates this measure, will not profit by the bill, as it is purposed to promote only those officers holding rank below major general. Most of the Department chiefs will, however, be benefitted by the plan, and it is to them that the lower ranking officers are looking for the most active assistance. At the date of the last Army Register (Jan. 1, 1899), there were 137 general and staff officers who served during the Rebellion on the active list and 216 officers of the line; a total of 353. All of the colonels and lieutenant colonels of the line, 90 of the majors and 72 captains were veterans of our great war. The list has since diminished somewhat by retirement. But officers on the retired list think that they should be included in the benefits of the law. In a letter received from one of this class, he says: "It seems to me that Congress if disposed to do the just thing, and do a graceful act, for none of us will be here for long, it ought to give one grade more than they now have to all the veterans of the Civil War who served on battle-fields efficiently."

It is doubtful whether Congress would be disposed at this late day to open the record to determine who of our retired officers have records bringing them within any possible definition of efficient service. If all retired officers having Civil War records were promoted, 571 names could be added to the list, or nearly 900 altogether, making allowance for changes since the last Register was published. It is doubtful whether Congress would consent to such wholesale promotion, and if less than the whole is to be asked for, officers should agree among themselves as to what it should be, so that they may not present a divided front to Congress.—*Army and Navy Journal.*

PROMOTION OF RUSSIAN ARMY OFFICERS.

According to the Russian journals, the General Staff has laid before the Council of War a scheme which is meant to greatly modify the present regulation for the promotion of officers of the army. According to this scheme, the promotion of subaltern officers will invariably be made according to their length of service and the duration of service in the rank of lieutenant and of second captain will be fixed at a total of eight years in both ranks combined. This beneficent reform will greatly diminish the time passed in the inferior ranks, and at the same time give a wider scope to the rights and privileges conferred on higher military education.

At present the promotion of infantry and cavalry subaltern officers is made regimentally, and in spite of the great deficit of officers in the Russian army (14 per cent. of the regulation peace effective) promotion is exceedingly slow, officers remaining for from twelve to twenty years in the rank of lieutenant and second captain.

Regiments stationed in large towns attract the greater number of officers, and promotion is consequently slower in these than in bad garrisons; this situation is evidently not normal, and one asks why certain officers advance more rapidly than others to superior rank, when their only merit is that they belong to a regiment in which vacancies occur more rapidly. The new scheme solves the promotion question in the most reasonable manner. Every officer will become a first captain after twelve years' service, of which four years will have been passed

in the rank of sub-lieutenant, and eight in that of lieutenant and second captain. In the superior ranks promotions will be made throughout each branch of the service, in the cavalry, infantry, etc.

Another consequence of this state of things will be the possibility for officers to take a far greater advantage of the rights conferred on them on leaving the military academies. The Staff College has for its chief object the expansion of scientific military knowledge amongst officers, and secondly, to recruit the Staff Corps. Only a small number of the officers leaving each year is attached to the Staff, the others rejoin their respective corps, with the right of promotion to the rank of superior officer after passing four years in that of first captain. According to the present condition of affairs, this privilege has sometimes to be awaited for a considerable time, because an officer rejoining his corps may have to serve ten, fifteen, or even twenty years before attaining the rank of first captain. Thus many "academicians," with such a future before them, leave their regiments and endeavor to obtain a billet in the commissariat staff, some office, or elsewhere, where there is no necessity for superior military attainments. It was most certainly not with a view to making commissariat officers that the Staff College course was instituted. It was hoped that officers would spread the knowledge they had acquired amongst their regiments, and so render good service to the army. The present scheme provides a remedy for this situation. The Staff College man will now not have long to wait before attaining the rank of first captain, and in consequence that of superior officer; he may even be nominated lieutenant-colonel (there is no rank of major in the Russian army) at the end of fifteen to seventeen years' service. Officers who have received a superior military education are thus induced to remain with their regiments, where they may communicate and apply the instruction they themselves have received.

It is clear that this scheme lessens the number of years' service in the inferior ranks, the subaltern cadres more youthful, and provides a constant flow into regiments of officers leaving the academies. If one considers the other armies of Western Europe, one sees that the average age of first captains is 45 years,

and that of superior officers more than 50; officers of the Staff and of the artillery are younger, first captains being, on an average, 40 years of age, and of superior officers about 50. By means of this scheme, therefore, the commissioned ranks of the Russian army will be younger than those of any other.—*La France Militaire.*

CROSSING OF RIVERS.

The passage of a river in conjunction with manœuvres took place on the Elbe, a short time ago, on the 20th of August last, in the neighborhood of Nieder-Lommatzsch and Riesa. The general idea of the experiment was that the enemy was on the left bank of the Elbe, and must be vanquished and put to flight. The enemy having crossed the river, it was of importance to take the pursuing cavalry division as rapidly as possible to the other side, in order to pursue the enemy and if possible attack him in flank. The crossing took place partly in barges, which were there at the disposal of the Waterworks, and partly in folding boats, a certain number of which every cavalry regiment carries with them. In addition to these, the pioneers crossed at each place in a few pontoons. The Guard Cavalry Regiment crossed over at Nieder-Lommatzsch-Seusslitz, the 1st Uhlans at Castle Hirschstein, the 2d Uhlans at Merschwitz, the 1st Hussars at Boritz, the 2d Hussars at Leutewitz-Nünschritz, and the Carabiniers at Moritz. The horse artillery was split up amongst all these places, so that the passage of the guns might be tried at each place.

The crossing of the Elbe took place in the following manner: the rider, with his horse's saddle, took his seat in a folding boat, and holding his horse securely by the reins, let it swim the river behind the boat. In this way six to twelve men with their horses and riding gear were conveyed across the Elbe with one boat. The guns were driven between two barges and then securely fastened to a platform of balks. The six horses were harnessed on the opposite bank, and drew the gun off in a very short time. The crossing took place uncommonly quickly, and was carried out with remarkable safety. Torches were used for lighting the river bank, but the full moon, besides shone so brightly that what was taking place on the river could be nar-

rowly observed. All traffic on the Elbe was discontinued from 10 o'clock P. M. Punctually at 12 midnight the crossing began and shortly beore 3 A. M., six cavalry regiments and the horse artillery, with all their men, horses, guns, and impedimenta, had been transferred from the left to the right bank of the Elbe, without an accident of any kind having occurred. To insure the safety of the men, a manned boat lay below each place of crossing. The horses were saddled immediately on landing, and the different detachments rode off to their regimental places of assembly, and proceeded from there by different routes to the manœuvre ground. The various regiments then took up their positions under cover, and shortly before 5 A. M. the division proceeded in the direction of Collennitz, the enemy leaving being marked down at Wildenhain. The sudden breaking out from cover, the advance of six cavalry regiments, the rapid drawing up, unlimbering and fire of the artillery, mingled with the crackle of the rapid fire of the cavalry, formed a beautiful military spectacle. When the Rodner Höhe was reached almost simultaneously and stormed by all the regiments, the "halt" was sounded, and a march-past of the whole cavalry division and the horse artillery took place before the divisional staff. By 6 A. M. the parade was over and the regiments returned to their quarters.—*Journal of the Royal United Service Institution.*

THE USE OF DOGS IN WAR.

As is well-known, war dogs have been in use in the German army for about fifteen years. This year, for the second time, a trial of these dogs was held at Oels, in Silesia, the results of which were most interesting, from various points of view. It took place on the 3d and 4th of July last, and a wooded country interspersed with corn-fields was selected. Sixteen dogs, consisting of five collies, two short-haired German setters, four sheep-dogs, one poodle, and the rest cross-breeds, belonging to the Guards' Rifle and Jäger battalions, took part in the trial.

Only officers of the Jäger battalions officiated as judges. Points were awarded for:—

1. Behavior as watch-dog.
2. Returning to the trainer from reconnoitring party.
3. Going to the reconnoitring party from the trainer.

4. Following on the trail of the trainer.
5. Casting off.

Capacity for being led on the leash, fetching and carrying ammunition, seeking for wounded, and giving tongue, were not tried for want of time.

Classification, according to points obtained, was awarded in a most searching manner. Only seven dogs gave notice of the approach of an enemy's patrol by a low growling, whilst five dogs barked loudly, and four took no notice whatever of the enemy.

The young dogs had to cover a distance of 2½ kilometres, and the old dogs 3 kilometres in the carrying of information from the picket to the reconnoitring party and back, returning on the same errand, after the pickets had changed their positions about 200 metres during the dog's absence. Ten dogs performed the errands in the most satisfactory manner, and, as was proved by the time-tables attached to their collars, with the utmost dispatch. Taking all the dogs together they may be reckoned as having taken 4½ minutes to each kilometre. Dogs which gave an unsatisfactory performance in carrying dispatches were debarred from taking any further part in the competition. The shortest time taken in the laying on of the dogs was 20 minutes. Following on the trail was tried for a distance of 600 metres, and it is certainly remarkable that whilst eight dogs did not reach their trainers either from inability to take up the trail or by losing it, the five collies fulfilled this test in the most satisfactory manner. The other eight dogs relied too much on their eyes and too little on their noses. Unfortunately, it is just the dogs of the sporting class which cannot be employed as war dogs, owing to their partiality for game, for no reliance can be placed on their following a trail if it is crossed by game of any kind. The five collies, crosses between English and Scotch sheep dogs, belonging to the 6th Jäger battalion, showed to the best advantage. They proved themselves sufficiently alert, obedient, intelligent, with good noses, and indifferent to game. The poodle, however, took the first prize, with a total of 96 points. There will take place this year a winter trial of war-dogs in the snow and ice, and for this a prize of 1000 marks has been offered from a private source.—*Deutsche Heeres-Zeitung.*

Additional Prize Essay.

The Secretary announces to the officers of the Army and Navy that LOUIS L. SEAMAN, M.D., LL.B. (late Major-Surgeon 1st U. S. Volunteer Engineers), has presented to the MILITARY SERVICE INSTITUTION OF THE UNITED STATES the sum of

ONE HUNDRED DOLLARS IN GOLD

(or a Medal of that value as the successful competitor might elect) for the best thesis on

THE IDEAL RATION FOR AN ARMY IN THE TROPICS.

The Executive Council has therefore decided that the competition is open to all officers of the Army and Navy (Volunteer or Regular); that three copies of the papers on the subject must be submitted to the Secretary by March 1, 1900; and that each thesis must be limited to 10,000 words, exclusive of statistics.

The Gentlemen chosen by the Council to constitute the Board of Award are:

COLONEL JOHN F. WESTON, Acting Commissary Gen'l, U.S.A.

LIEUT.-COL. CHAS. SMART, Deputy-Surgeon-General, U.S.A.

LIEUT.-COL. WM. E. DOUGHERTY, 7th U. S. Infantry.

WM. H. POWELL,
Colonel U. S. Army, Secretary.

GOVERNOR'S ISLAND, N. Y.,
July 22, 1899.

Obituary.

The Editor is pained to announce the death of the following members of the MILITARY SERVICE INSTITUTION since the last issue of JOURNAL:

Captain Guy Howard,

QUARTERMASTER U. S. A. (MAJOR and Q. M. VOLS.)

Captain Howard was killed by concealed insurgents near Arayat, Philippine Islands, October 22, 1899. He was on a launch in the Rio Grande River, attending to matters connected with his department, and was shot from ambush.

Captain Howard leaves a wife and several children to mourn his loss.

Captain Woodbridge Geary,

13TH U. S. INFANTRY.

On October 10, at 9.30 A. M., Captain Geary received orders to move his battalion, accompanied by one gun of Reilly's Light Battery, down the San Francisco de Malabon-Buena Vista road, and establish connection with Major Bubb's battalion of the 13th Infantry on his right front, distant about two miles, with an almost impassable river between and a vigilant enemy in the dense undergrowth and behind the many natural defenses afforded by the uneven ground. He encountered the insurgents on the outskirts of the town and drove them down the Buena Vista road for a distance of one and one-half miles without the loss of a man; established connection with Major Bubb as ordered; inflicted a loss to the insurgents of four killed and five wounded; captured their hospital, storehouse and fifty-seven prisoners, including one colonel and one lieutenant. While relieving the firing line with his second company, preparing for a second attack in obedience to orders, he received his mortal wound. His last instructions on the field were "Never mind me, go on with the fight." His burial took place in the National Cemetery, Manila, P. I., with military honors, October 12, 1899.

Captain Oliver B. Warwick,

18TH U. S. INFANTRY.

Capt. Oliver B. Warwick was killed in action in Central Panay, P. I. He was born in Alabama, entered West Point in 1868, but left before graduation; was appointed 2d Lieutenant, 18th Infantry, in 1873, and attained a captaincy in 1892. During that period he saw much service on the frontiers. He left New Orleans in May, 1898, for the Philippines to meet his fate in battle. He was unmarried, but leaves two sisters and a niece.

Captain James C. Ayres,

ORDNANCE DEPT., U. S. A.

Capt. James C. Ayres, on duty in Washington, D. C., was killed in that city December 8. He was on his bicycle, collided with a wagon, and received injuries which resulted in his death three hours later at the Emergency Hospital. The driver of the wagon was arrested, but was subsequently released, the jury rendering a verdict that the accident was unavoidable.

Captain A. D. Goodloe,

RETIRED U. S. A.

Captain Goodloe died at his residence, Lexington, Ky., November 27, 1899. He was a graduate of the Military Academy of 1865, and was retired as a captain of the 22d U. S. Infantry, April 24, 1883.

New Books.

The River War.*

THIS is the title of a new book by Winston Spencer Churchill, the son of Lady Churchill, who was Miss Jerome, of New York. It is an historical account of the re-conquest of the Soudan, and relates in exact military detail the operations directed by Lord Kitchener of Khartoum on the Upper Nile River from April, 1896, to February, 1899. The work is edited by Colonel F. Rhodes, D. S. O., and is dedicated to the Marquis of Salisbury, K. G.

Kitchener's name is a household word among the military people of America, and the story of his work in Africa will be read with interest by the English-speaking people of the world. The title of the book, however, does not attract. We think one more suggestive of the contents would induce many to open the cover who now might pass it by without having an idea of what its pages reveal.

The first chapter is devoted to a general description of what the author terms "the military Soudan," and he has not failed to supply the reader with a knowledge of its character. He says the great tract "stretches with apparent indefiniteness over the face of the continent. Level plains of smooth sand—a little rosier than buff, a little paler than salmon—are interrupted only by occasional peaks of rock—black, stark and shapeless. Rainless storms dance tirelessly over the hot, crisp surface of the ground. The fine sand, driven by the wind, gathers into deep drifts, and silts among the dark rocks of the hills, exactly as snow hangs about an Alpine summit; only it is a fiery snow, such as might fall in hell. The earth burns with the quenchless thirst of ages, and in the steel-blue sky scarcely a cloud obstructs the unrelenting triumph of the sun. Through the desert flows the river—a thread of blue silk drawn across an enormous brown drugget; and even the blue thread is brown for half the year. Where the water laps the sand and soaks into the banks, there grows an avenue of vegetation, which seems very beautiful and luxuriant by contrast with what lies beyond."

The second chapter is devoted to the rebellion of the Mahdi, describing the inhabitants of the Soudan; their history; the spirit of empire; the rule of Egypt; its magnificence; its shame; the army of occupation; General Gordon in the Soudan; his administration; the force of fanaticism; its influence on the revolt; a just quarrel; early days of the Mahdi; the great conspiracy; rebellion, etc.

The third chapter contains the story of the fall of Khartoum and of the death of Gordon. Many have supposed that this catastrophe might have been averted, but Gordon has stated in his journals that the town became defenseless by the

* *The River War, an Historical Account of the Reconquest of the Soudan*, by Winston Spencer Churchill, edited by Col. F. Rhodes, D. S. O, and published in two volumes by Longmans, Green & Co., 39 Paternoster Row, London, and 91-93 Fifth Avenue, New York. Price, $10.

middle of December. Everyone who reads this sad story will wish, in spite of reason, that some help, however little, had reached the lonely man. The author says: "The events thus briefly described are too recent, and the bitter controversies they excited are still too fresh in the minds of men for an impartial and definite judgment to be passed on the character of the General or the conduct of the Government. But several features stand out with such prominence that, although the contemporaneous chronicler must ultimately bow to the historian, he is not altogether forbidden to pronounce. * * * The case against Mr. Gladstone's administration is so black that historians will be more likely to exercise their talents in finding explanations and excuses than in urging the indictment. Something may be said of grave difficulties; something of good intentions; something of human fallibility; something of ill-luck. But the real plea for oblivion is found in the fact that the conduct of affairs in Egypt by the Radical Government was in the spring of 1885 partly, and in the autumn of 1885 fully supported by the electorate at General Elections."

With the sixth chapter the author commences his story of the war, which is of exciting interest to the end of the second volume. The battle of Omdurman is described at great length and furnishes an illustration of the fanaticism with which the Dervishes fought. In describing the attack the author says:

"The left, nearly 20,000 strong, toiled across the plain and approached the Egyptian squadrons. The leading masses of the centre deployed facing the *zeriba*, and marched forthwith to the direct assault. One small brigade of their great force—perhaps about 2000 strong—halted 500 yards from my patrol. A few horsemen—dark brown figures who moved about in their front—approached us so nearly that it was necessary to fire on them. This apparently annoyed the others, for they immediately paid us the compliment of detaching a score of riflemen to drive us from our point of observation. Meanwhile the Khalifa and his flag, surrounded by at least 10,000 men, were also drawing near. The tide was rising fast. One rock, one mound of sand after another was submerged by that human flood. * * * As the whole Dervish army continued to advance, this division, which had until now been echeloned in rear of their right, moved up into the general line and began to climb the southern slopes of Surgham Hill. * * * The Dervish centre had come within range. But it was not the British and Egyptian army which began the battle. If there was one arm in which the Arabs were beyond all comparison inferior to their adversaries it was in guns. Yet it was with this arm that they opened their attack."

From this on the reader is carried with interest through one of the most exciting battles fought with an uncivilized race. The Dervish losses were from computations made on the field, and corrected at a later date, ascertained to be 9700 killed, while the wounded were variously estimated from 10,000 to 16,000.

*Outlines of Modern Tactics.**—This valuable little book we noticed in our November (1895) number, and take pleasure in stating that its issue has already reached the third edition. It is being called for by members of the National Guard of the United States, and we would be glad to find it in the hands of every officer of that branch of the service.

The reorganization of the British war establishment in 1898, and the progress in weapons, etc., necessitated the rewriting of the book, and as much interest is now naturally excited by the war in South Africa, the officers of the

* By Lieut.-Col. E. Gunter, P. S. C., published by Wm. Clowes & Sons, Limited, 13 Charing Cross, London; crown 8vo, cloth; 3d edition; price 7s. 6d., or post free on receipt of 7s. 9d.

army and National Guard will be glad to know that this little book embodies, as far as practicable, all changes of importance, with great facilities of reference, so that it is as well adapted to teaching from as for study. The preface shows the chief changes made; "Hill fighting" is a specialty.

Colonel Baden-Powell's New Book: Aids to Scouting.—Colonel Baden-Powell's new book, the proofs of which he corrected at Mafeking and returned to the publishers just before the place was besieged, has been published this week by Gale and Polden, Ltd. It is a book brimful of interest, as we might expect it to be, for on the subject of scouting, Colonel R. S. S. Baden-Powell, of the 5th Dragoon Guards, is certainly one of the greatest authorities.

Hints are always valuable, and "Aids to Scouting for Non-Commissioned Officers and Men" is really a collection of hints, and hints, moreover, of an extremely useful kind, for they are founded for the most part on the actual experience and personal practice of the author.

On the importance of scouting and reconnaissance, it will be interesting to give Colonel Baden-Powell's own words:

"It has been said," he points out, "that there is scarcely a battle in history which has not been lost or won in proportion to the value of the previous reconnaissance. Either the winners have won through knowing all about the numbers and position of their adversaries, and have thus been able to direct their moves to insure success; or the loser, through ignorance on these points, has been unable to save himself.

"Reconnaissance is not carried out by large masses, but by means of small parties, and even individual men specially adapted for the work. These are the scouts. Scouts can go unseen where parties would attract attention. One pair of trained eyes is as good as a dozen pair untrained. Their duties are the most important that can fall to individual men in war time, and they have the best chances of distinguishing themselves in the field. They are the detectives who seize upon and follow up the slightest clue till they have tracked down the hostile gang. From their information the police, as a body, are able to take their measures with certainty to rush and capture the gang."

So much for the importance of scouting. The author goes on to detail the qualifications for a scout. These qualifications are:

Pluck and self-reliance.
Finding your way in a strange country.
Using your eyes and ears.
Keeping yourself hidden.
Tracking.
Getting across country.
Taking care of yourself and your horse.
Sketching and reporting information.

Taking these qualifications one by one, Colonel Baden-Powell makes them the basis of separate and exceedingly interesting chapters, showing exactly what he means by them and how they are to be obtained.

"To be successful as a scout," is the author's summing up, "you must have plenty of what Americans call 'jump' and 'push.' 'Jump' being alertness, wide-awakeness, and readiness to seize your opportunity; 'Push' being a never-say-die feeling: if stopped at one point shove in somewhere else—just what is meant by your regimental motto, *Nulla Vestigia Retrorsum*, 'Don't give in, keep pushing onward.'

"When in doubt as to whether to go on or to go back think of that and of the Zulu saying, 'If we go forward we die, if we go backward we die; better go forward and die.'"

It is published by Gale and Polden, Ltd., Wellington Works, Aldershot, and 2 Amen Corner, London, E.C., at a shilling post free.

*Boer War, 1899.**—One of the most useful publications at the present time is an English book entitled "Boer War, 1899," by Lieut.-Colonel H. M. E. Brunker, published by Wm. Clowes & Sons, Limited, 13 Charing Cross, London. This handy work contains a chart showing the organization and distribution of the British forces, with a list of the staffs of all units and of the officers of regiments, battalions, batteries, etc., and an estimate of the strength of Great Britain's available forces. Also a short account of previous events and a diary of the present campaign up to the date of its publication. The book is an invaluable adjunct to every library, and to those who are interested in the present South African war it is indispensable.

The Officers Field Note and Sketch Book and Reconnaissance Aide Memoire.—In our notice of this publication (November, 1899), we omitted to state that it was by Lieut.-Col. Edward Gunter, P. S. C., and published by Wm. Clowes & Sons, Limited, 13 Charing Cross, London; price 6s. 6d. The work is now in its fourth edition, and as we stated before it is a valuable adjunct to any officer's equipment.

* By Lieut.-Col. H. M. E. Brunker; published by Wm. Clowes & Sons, Limited, 13 Charing Cross, London.

Acknowledgments.

Military.

United Service Magazine for November and December, 1899; Charing Cross, London.

Revue du Cercle Militaire; regular issues for November and December, 1899; Paris.

Revista di Artiglieria e Genio for September and October, 1899; Rome, Italy.

Army and Navy Journal; regular issues for November and December, 1899; New York.

Army and Navy Register; regular issues for November and December, 1899; Washington.

United Service Gazette; regular issues for November and December, 1899; London.

La Revue Technique; regular issues for November and December, 1899; Paris.

Observations Abroad, by Major General N. A. Miles; War Department, Washington.

Autumn Manœuvres of 1898; War Department, Washington.

Reports of Explorations in the Territory of Alaska, 1898, by Capt. E. F. Glenn, 25th U. S. Infantry, and Capt. W. R. Abercrombie, 2d U. S. Infantry; War Department, Washington.

The National Military and Naval Journal for October, 1899; Lancaster, Penn.

Revista Militar for August, 1899; Rio de Janeiro, Brazil.

Journal of the U. S. Artillery for August and December, 1899; Fort Monroe, Va.

International Revue über die Gesammten Armeen und Flotten for October and November, 1899; Dresden.

Journal of the United Service Institution of India for October, 1899; Simla, India.

Seventh Regiment Gazette for November and December, 1899; New York.

El Boletin Militar for November and December, 1899; City of Mexico.

Revue d'Artillerie for November, 1899; Paris.

La Belgique Militaire; regular issues for November and December, 1899; Brussels.

Proceedings of the Royal Artillery Institution for September and October, 1899; Woolwich, England.

Revue de L'Armée Belge for July and August, 1899; Liege.

Army and Navy Gazette; regular issues for November and December, 1899; London.

Revue Militaire for October and November, 1999; Paris.

Naval.

Revista Maritima Brazileira for August, 1899; Rio de Janeiro.

Annual Reports of the Navy Department for 1898; Washington, D. C.

Boletin del Centro Naval for August and September, 1899; Buenos Ayres.

Marine Review; regular issues for November and December, 1899; Cleveland, O.

Nautical Gazette; regular issues for November and December, 1899; New York.

Miscellaneous.

Monthly Weather Review for July and August, 1899; Washington, D. C.

Current Literature for September and October, November and December, 1899; New York.

The Cosmopolitan for November and December, 1899; New York.

St. Nicholas for November and December, 1899; The Century Co., New York.

Book Reviews for October and November, 1899; Macmillan Co., New York.

Proceedings of the American Society of Engineers for October and November, 1899; New York.

Official Gazette of the U. S. Patent Office; regular issues for November and December, 1899; Washington.

Journal of the Western Society of Engineers for August and October, 1899; Chicago.

Woman's Home Magazine for November and December, 1899; Springfield, Ohio.

Oration at the Unveiling of the Equestrian Statue of Major General Winfield S. Hancock, by Brevet Brigadier General Henry H. Bingham; Philadelphia.

Political Science Quarterly for December, 1899; Ginn & Co., Boston.

American Monthly Review of Reviews for November and December, 1899; New York.

The North American Review for December, 1899; New York.

The Medical Record; regular issues for November and December, 1899; New York.

Bulletin of the American Geographical Society, Vol. 31, No. 4; New York.

Courier de France et d'Amerique for November, 1899; Paris.

Minutes of Proceedings of the Institution of Civil Engineers; Vol. CXXXVIII, 1898-9; Great George Street, London.

Spanish War Record Society of Colonial Wars, 1899; published by the Society.

Scientific American; regular issues for November and December, 1899; Munn & Co., New York.

The Century Magazine for November and December, 1899; New York.

Announcements.

Essays

In competition for

The Prize of 1900

Have been received from writers with the following nommes-de-plume:

Walden-Highbridge.
Matchlock Matross.
Bradford.
Pro Patria.
Droit et Avant.
Boutez en Avant.
Security.

A General Meeting of THE MILITARY SERVICE INSTITUTION was held on the night of December 8th, 1899, in the Armory of the Seventh Regiment, N. G. of N. Y., and was a great success. After numerous speeches a fine supper was served in the Veterans' Room. A full account of the proceedings will be published later.

The Members and Associate Members of the Institution are respectfully informed that the biennial general meeting, called for by Article VI. of the Constitution, will be held at Governor's Island, N. Y., on the 10th day of January, 1900.

The Military Service Institution.

President.

Major-General NELSON A. MILES, U. S. Army.

Resident Vice-Presidents.

Major-General WESLEY MERRITT, U. S. A. — Bvt. Brig.-Gen. T. F. RODENBOUGH, U. S. A.

Secretary.

Col. WM. H. POWELL, U. S. A.

Treasurer.

Col. C. A. WOODRUFF, Sub. Dept.

Asst. Secretary.

Vacancy.

Vice-Treasurer.

Vacancy.

Executive Council.

Term ending 1905.

BENYAURD, W. H. H., Lieut.-Col. Corps Eng'rs.
KIMBALL, J. P., Major Med. Dept.
MILLS, A. L. Col, Supt. Mil. Academy.
Vacancy.
STORY, J. P., Major 7th U. S. Artillery.
WEBB, A. S., Bvt. Major-General (late) U.S. A.

Term ending 1903.

BUTLER, J. G., Major Ord. Dept.
FIEBEGER, G. J., Prof. U. S. Mil. Academy.
GILLESPIE, GEO. L., Colonel Corps Engineers.
VROOM, P. D., Lieut Col. I. G. Dept.
WILSON, C. I., Col. Pay Dept.
Vacancy.

Term ending 1901.

BARRIGER, J. W. Bvt. B.-G. U. S. A.
CLOUS, J. W., Lieut.-Col. J. A. Dept.
HEIN, OTTO L., Lieut.-Col.
BREWERTON, H. F., Major U. S. A.
KNIGHT, J. G. D., Major Corps Engineers.
Vacancy.
APPLETON, DANIEL, Col. 7th Regt., N.G., N.Y.

Finance Committee.

Gen. BARRIGER.
Col. POWELL.
Major BUTLER.

Library Committee.

General WEBB.
Major KIMBALL.

Publication Committee.

Colonels POWELL, APPLETON and CLOUS, and Major KNIGHT.

Branches

are established at West Point, Fort Leavenworth and Vancouver Barracks.

Membership dates from the first day of the calendar year in which the "application" is made, unless such application is made after October 1st, when the membership dates from the first day of the next calendar year.

Initiation fee and dues for first year $2.50, the same amount for five years subsequently. After that two dollars per year. This includes the Journal.

NOTE.—Checks and Money Orders should be drawn to order of, and addressed to, "The Treasurer Military Service Institution," Governor's Island, New York Harbor. Yearly dues include Journal.

Changes of address should be reported promptly.

Prize Essay—1900.

I.—The following Resolution of Council is published for the information of all concerned:

Resolved, That a Prize of a Gold Medal, together with $100 and a Certificate of Life Membership, be offered annually by THE MILITARY SERVICE INSTITUTION OF THE UNITED STATES for the best essay on a military topic of current interest, the subject to be selected by the Executive Council, and $50 to the first honorably mentioned essay. The Prizes will be awarded under the following conditions:

1. Competition to be open to all persons eligible to membership.

2. Each competitor shall send three copies of his Essay in a sealed envelope to the Secretary *on or before January* 1, 1900. The Essay must be strictly anonymous, but the author shall adopt some *nom de plume* and sign the same to the Essay, followed by a figure corresponding with the number of pages of MS.; a sealed envelope bearing the *nom de plume* on the outside, and enclosing full name and address, should accompany the Essay. This envelope to be opened in the presence of the Council after the decision of the Board of Award has been received.

3. The prize shall be awarded upon the recommendation of a Board consisting of three suitable persons chosen by the Executive Council, who will be requested to designate *the Essay deemed worthy of the prize;* and also in their order of merit those deserving of honorable mention.

In determining the essay worthy of the prize, the Board will be requested to consider its professional excellence, usefulness and valuable originality, as of the first importance, and its literary merit as of the second importance. Should members of the Board determine that no essay is worthy of the prize, they may designate one or more essays simply as of honorable mention; in either case, they will be requested to designate one essay as first honorable mention. Should the Board deem proper, it may recommend neither prize nor honorable mention. Should it be so desired, the recommendation of individual members will be considered as confidential by the Council.

4. The successful Essay shall be published in the Journal of the Institution, and the Essays deemed worthy of honorable mention shall be read before the Institution, or published, at the discretion of the Council.

5. Essays must not exceed twenty thousand words, or fifty pages of the size and style of the JOURNAL (exclusive of tables).

II.—The Subject selected by the Council at a meeting held November 11, 1899, for the Prize Essay of 1900, is

"THE ORGANIZATION OF A STAFF BEST ADAPTED FOR THE UNITED STATES ARMY."

III.—The names of the Members of the Board of Awards will be announced in the JOURNAL for March, 1900.

GOVERNOR'S ISLAND, N. Y.
January, 1900.

WM. H. POWELL,
Colonel U. S. A., Secretary.

All Officers

On Foreign Stations

Will please notify the Secretary of the Military Service Institution

The Address

to which they desire the JOURNAL to be delivered.